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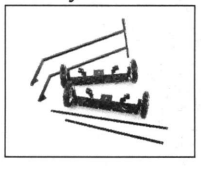
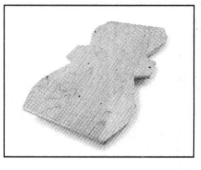
Wonky Wheels



Wonk Board



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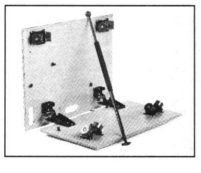

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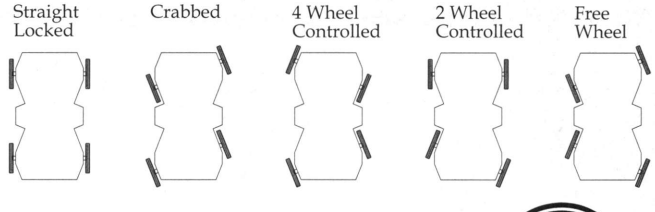

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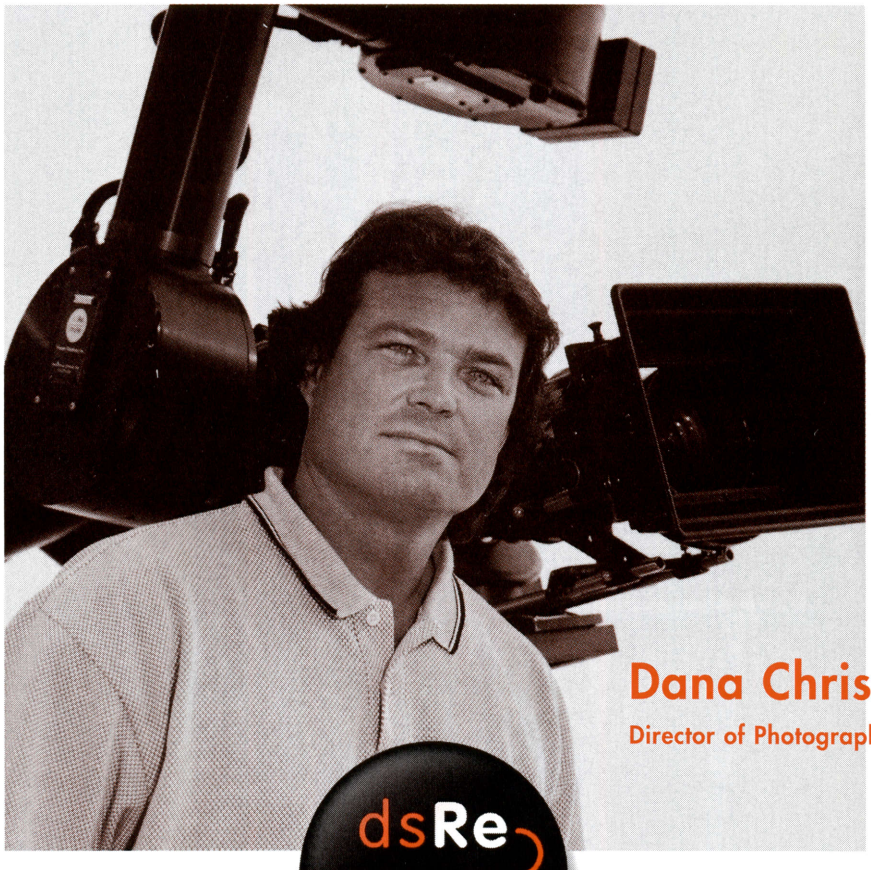

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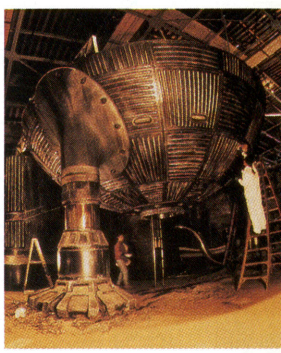
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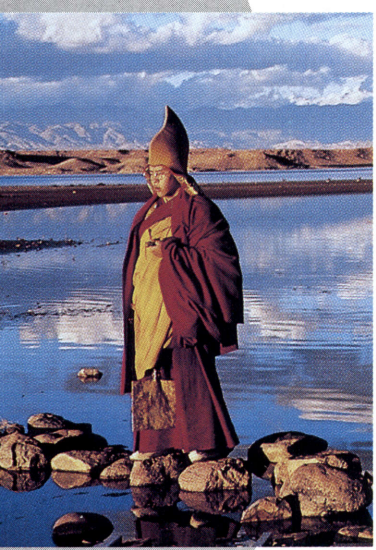

On Our Cover:
The Dalai Lama (Tenzin Thuthob Tsarong) stands on precarious political footing in *Kundun*, directed by Martin Scorsese and photographed by Roger Deakins, ASC, BSC (photo by Mario Tursi, courtesy of Touchstone Pictures Company).

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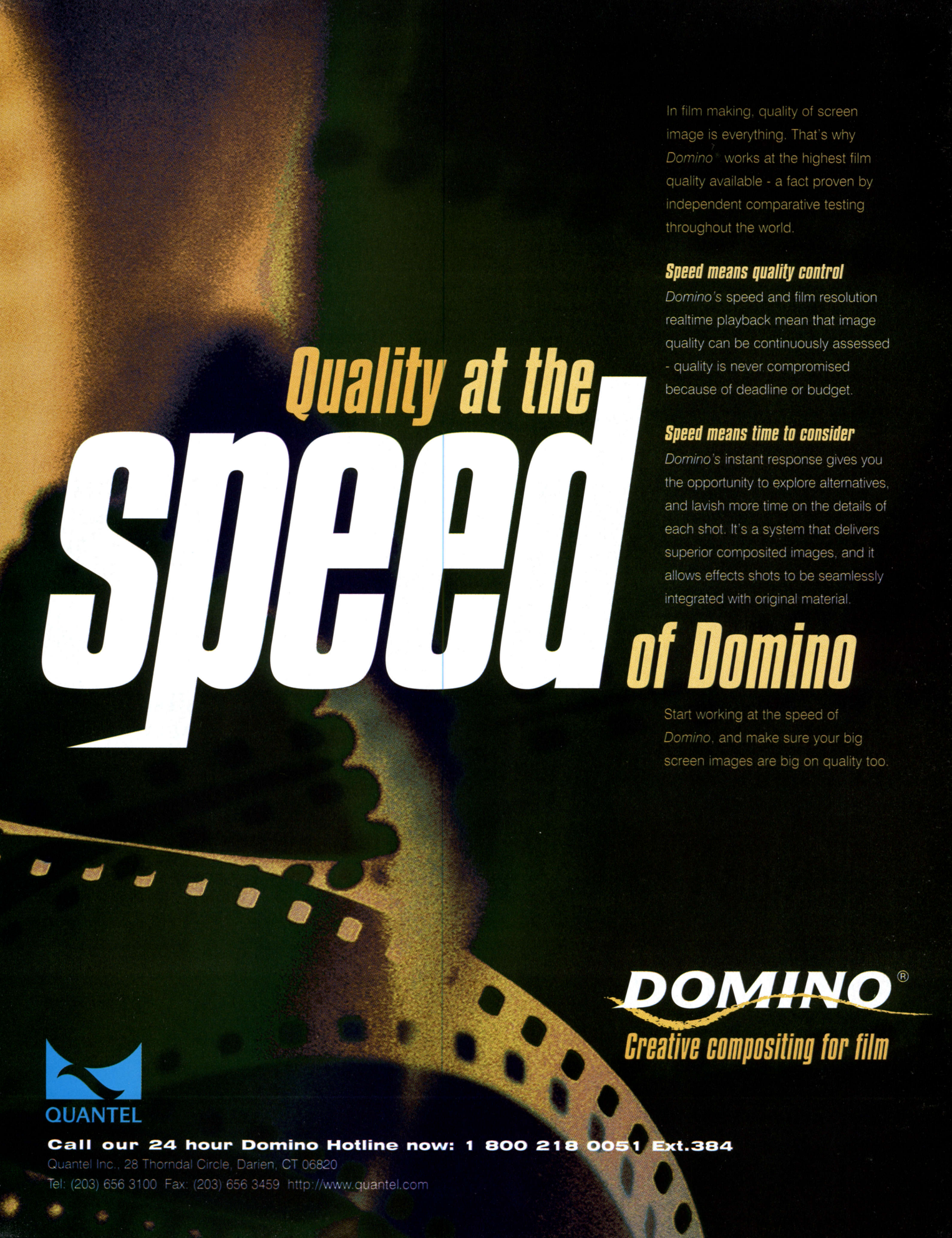
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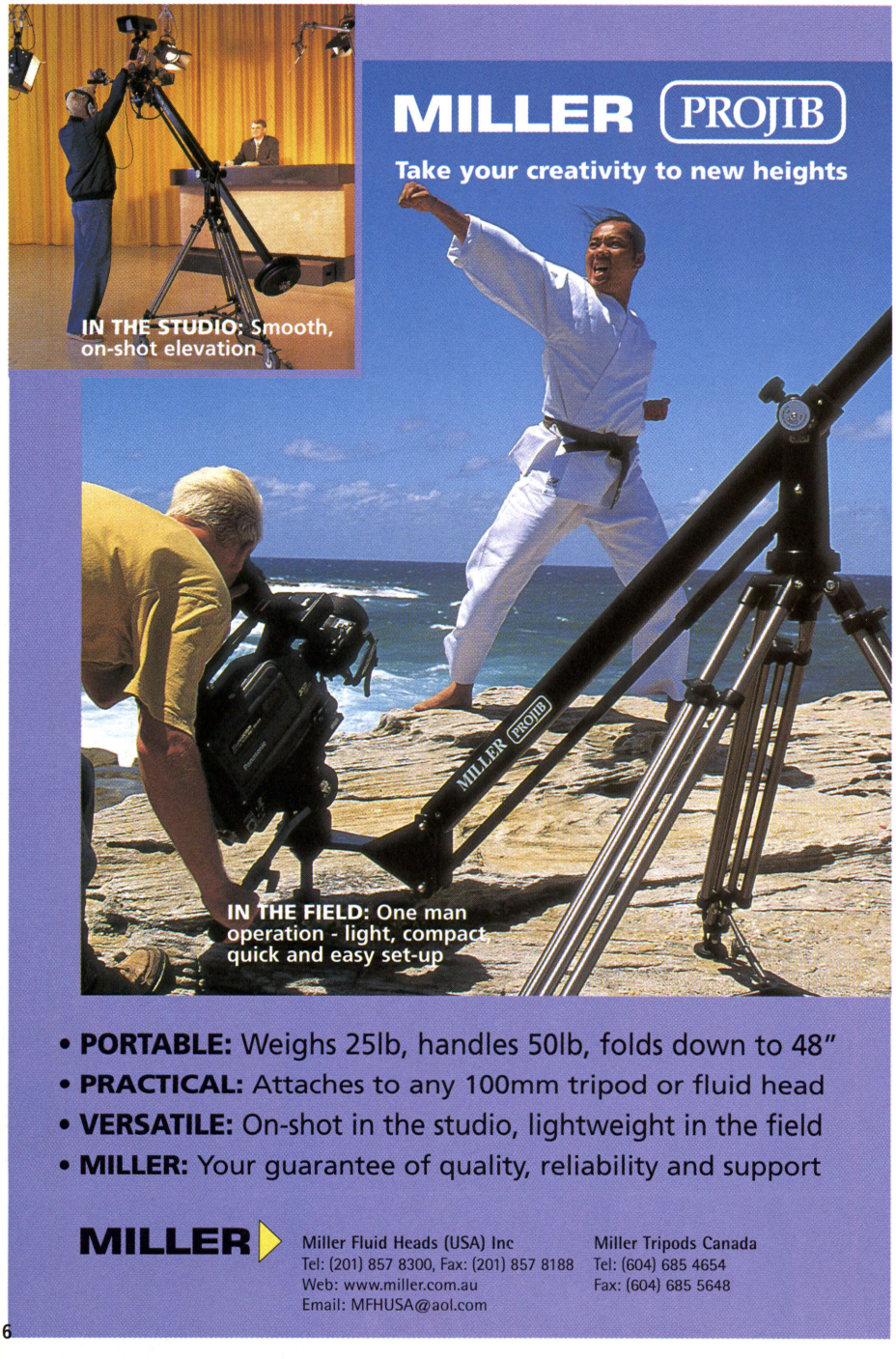

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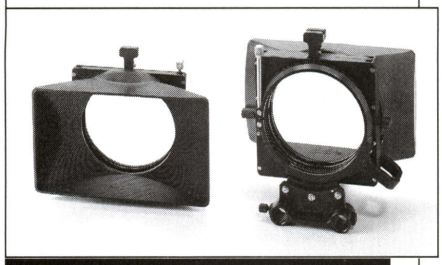

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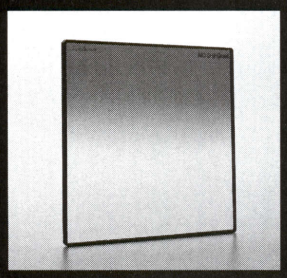

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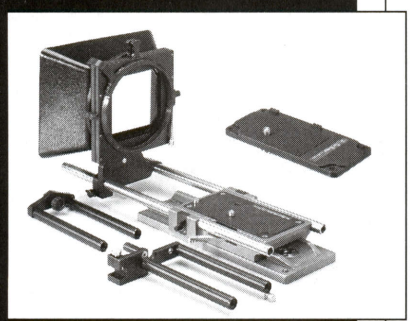

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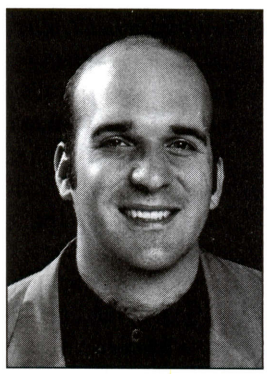
Editor's Note

Location shooting has always presented professional filmmakers with a compelling list of pros and cons. The difference between shooting in a soundstage and in real-life settings is roughly equivalent to playing sports within a domed stadium on Astroturf rather than an open-air stadium with real grass: the game is essentially the same, but it just doesn't *feel* as authentic.

To be sure, there are some clear benefits to making movies on a studio backlot. Variables such as weather can be controlled; sets can be tailored to suit a production's needs; and state-of-the-art equipment is just a phone call away. If a wild wall is preventing a beautiful interior shot, it can simply be moved; if there's not enough light on your tastefully rendered set, the crew can hang another rig from that sturdy network of steel pipes overhead. For the filmmaker who knows precisely what he wants before shooting even begins, the studio can provide a comforting home-field advantage.



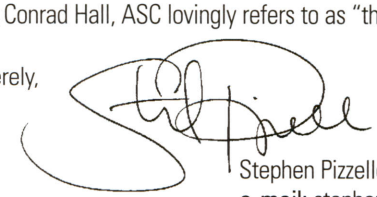
Shooting on location is a whole different ballgame. For starters, exterior work is inevitably subjected to the whims of Mother Nature. Sudden gusts of wind have scattered many a diffusion frame, and every experienced filmmaker has endured the queasy tension of trying to make one last shot before sunset (when "Magic Hour" turns to "Maalox Hour"). Rain, clouds, snow and heat may also wreak havoc with an otherwise sound strategy.

Interior work can be equally daunting when a production takes to the road. The watchdogs of private or historic properties don't take kindly to having lighting fixtures pounded into walls, and real spaces are not built with the concerns of a film crew in mind. Just ask any cinematographer who has ever found himself handholding a camera from the top of a stepladder, or trying to cram a crane into a space shaped like a Quonset hut.

Of course, as many of the articles in this issue of *AC* prove, there's nothing quite like an authentic location to add immediacy to an image. Despite the hardships he faced while shooting *Kundun* in Morocco (see page 38), cinematographer Roger Deakins, ASC, BSC was able to capture mesmerizing vistas that no matte painter could ever truly duplicate. Likewise, the Australian makers of *Oscar and Lucinda* (page 90) faced down "Furniture Fascists" and a floating church to bring sumptuous visuals to the screen. If these firsthand war stories don't satisfy your wanderlust, we've also provided field reports from productions based in Hong Kong, London, Africa and at the North Pole (see Production Slate and Wrap Shot). Those of you who favor the reassuring certitude of studio-oriented sets can seek solace in our pieces on *Sphere* (page 68) and *Desperate Measures* (page 82).

We hope that you'll find all of these articles enlightening, whether you prefer the preplanned perfectionism of an Alfred Hitchcock or the impassioned pursuit of what Conrad Hall, ASC lovingly refers to as "the happy accident."

Sincerely,



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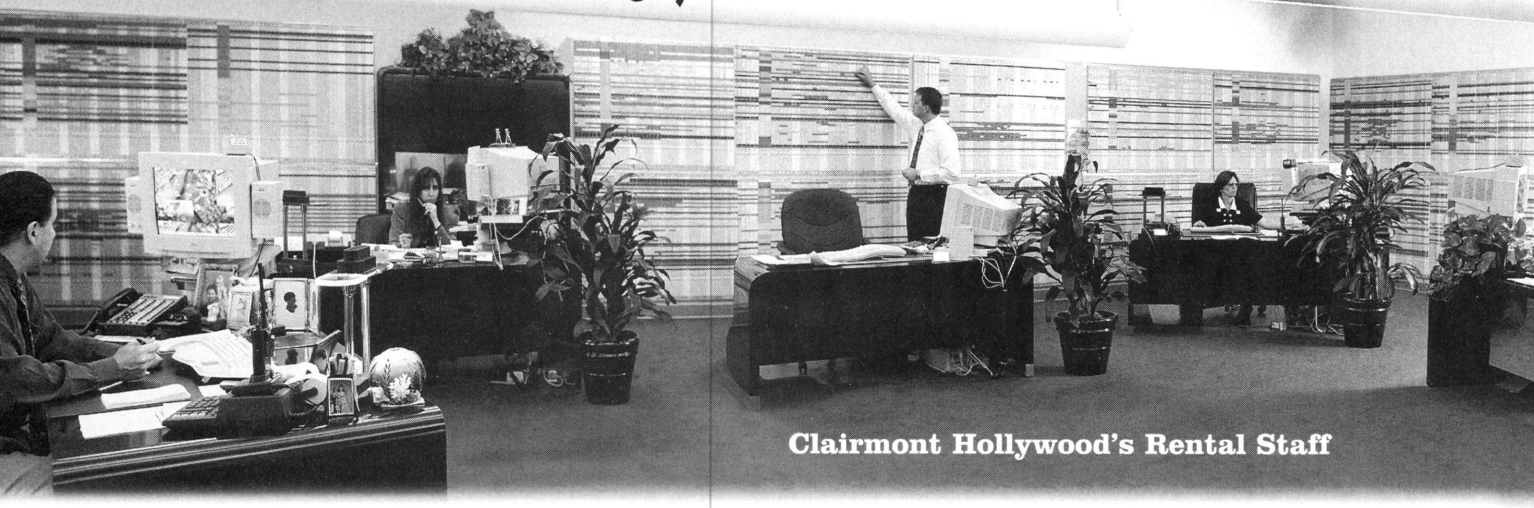

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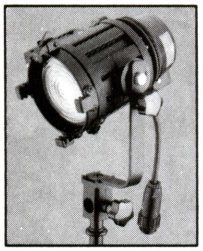
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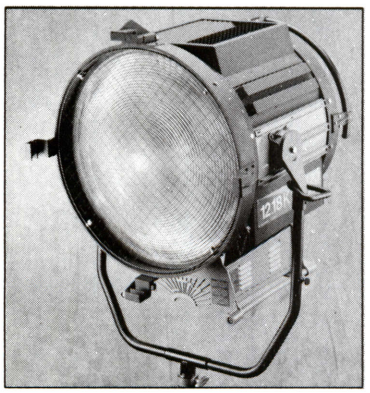
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Digital Perspectives

The 16mm Debate

by Frank Beacham

Is 16mm film is a good enough format for HDTV? This is a hot debate for broadcasters wrestling with how to execute a cost-effective transition to digital television. Not only are there considerable libraries of 16mm film, but program producers are looking for ways to beat the high cost of 35mm and HDTV video gear for low-budget productions.

The debate heated up in Las Vegas last April at the annual National Association of Broadcasters (NAB) convention. In a technical presentation, CBS made the unequivocal claim that 16mm film — both standard and Super 16 — is not worthy of HDTV.

To hammer home this point, the network showed grainy, soft images from its prime-time drama *Touched by an Angel*, which actually began as a 16mm production. Shown next were a series of HD imaging tests made on the *Seinfeld* set in Los Angeles.

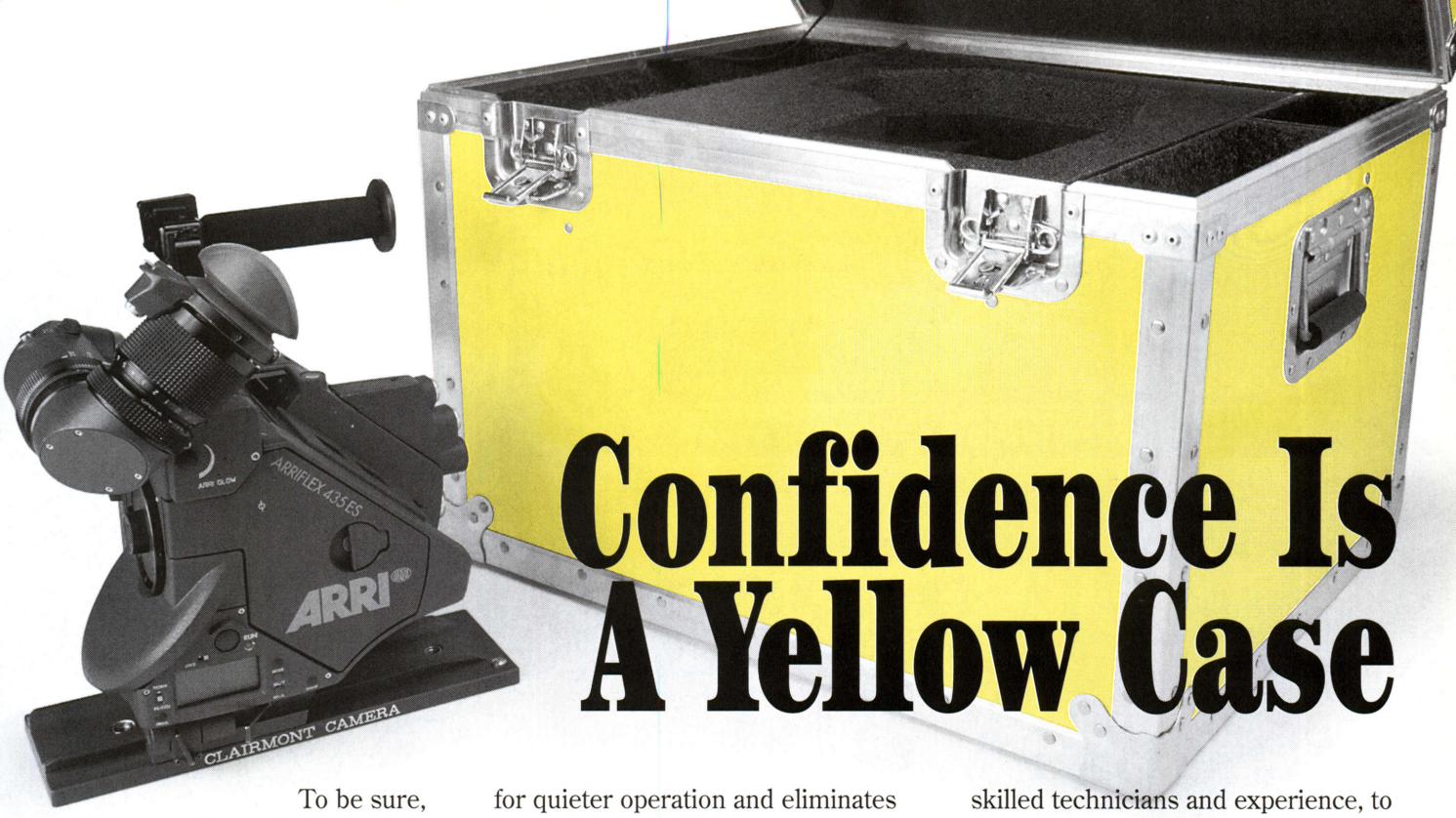
According to CBS engineering vice-president Robert Seidel, the bottom line is that producers of programs now shot on Super 16 or 16mm film will find their programs visually limited upon the advent of high- definition broadcasting. The results of the recent tests led many production executives and producers to walk away with the conclusion that only 35mm film and high-definition video could make the grade as a production medium in the HDTV era.

However, Eastman Kodak managed to prove the opposite point with a series of stunningly beautiful Super 16-to-HD video transfers. "It was an eye-opener for me," said Gary Poon in reaction to a Super 16 transfer shown by Kodak at last fall's Jackson Hole Wildlife Film Festival in Wyoming. Poon, the executive director of the DTV Strategic Planning Office at PBS, admitted to being influenced initially by CBS on the suitability of 16mm transfers, and added, "The issue needs to be reopened."

Many think the major reason for the discrepancy between the Kodak and CBS transfers lay in the methods used to convert the film to high-definition video tape. CBS used an L.A.-based HDTV telecine custom-built for Sony Pictures by the Atsugi camera group; the telecine uses a modified high-definition Hyper-HAD array CCD camera head from the Sony HDC-500 camera system, and a pin-registered intermittent projector movement developed for Sony by SEIKI Japan.

Kodak transferred their footage to video via the Philips Spirit DataCine, an advanced multi-format, multi-standard film scanner which can handle film resolutions up to 2K (1920 pixels/line). Kodak worked closely with Philips in developing the Spirit, which was introduced last year (see The Post Process, *AC* Sept. 1996). "The technology of getting 16mm film to tape is a very important part of this," said John J. Dowdell III, vice president of The Tape House Advanced Imaging Center, a New York City facility which owns and operates a Spirit DataCine. "If you shoot 16mm with good prime lenses, use good lighting and transfer it on a Spirit, you get a most satisfying high-definition image."

To make their case, the Tape House opened its doors to SMPTE conference attendees in November for high-definition video screenings of standard 16mm film from *Lewis and Clark*, the historical documentary directed by Ken Burns for PBS broadcast. The high quality of the 16mm-to-HD video transfers stunned many viewers. "The difference in 16mm transfer quality is the Philips Spirit DataCine film scanner," said



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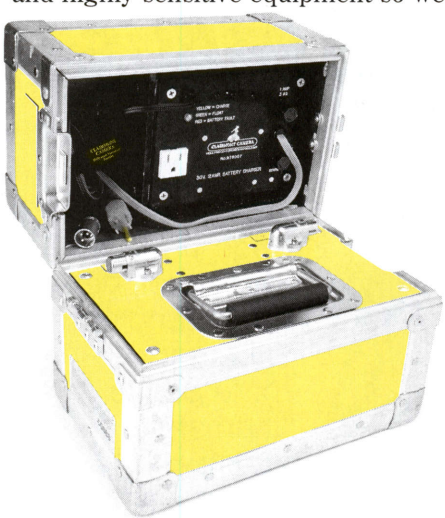

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Dowdell. "The optical block takes advantage of every pixel in the high-definition CCD. It's the same technology used in the Hubble space telescope."

At Crawford Communications in Atlanta, David Warner, chief engineer of the film group, frequently works with 16mm on a Spirit DataCine. The DataCine's superior optics, coupled with improved film stocks, is resulting in transfers he describes as "absolutely beautiful." The engineer maintains that the CBS tests simply do not represent the state of the art in 16mm transfer technology. "There's no noise in the Spirit telecine," said Warner. "The transfers are exceedingly sharp. We could display these in HD in a minute."

Glenn Kennel, a manager for digital film conversion at Kodak, noted, "Super 16 looks very, very close to 35mm from an overall sharpness and quality standpoint. It's a little bit grainier, but certainly very acceptable for HD production," particularly with Kodak's improved new line of Vision film stocks.

Sony vice president Larry Thorpe conceded that the recent Super 16mm transfers done on the Spirit DataCine were "beautiful" to the eye but explained that the CBS tests performed on Sony's prototype telecine were done with the express purpose of determining resolution. "We didn't do image enhancement and color correction, the things that are done in a commercial transfer to achieve a beautiful image," Thorpe said.

Though Thorpe is Sony's front-line advocate for high-definition video imaging, he conceded that the Super 16 format — not regular 16mm — is indeed viable for HDTV acquisition. "Our work at Sony shows that 35mm fully fulfills the whole 1920 by 1080 format," Thorpe said. "Super 16 falls a bit short, but subjectively — if you put in a little image enhancement — it will make very good HD. The big difference between 35mm and 16mm is margin; 35mm has lots, Super 16 doesn't. If you have a good camera, a good lens, good film stock and a good cinematographer, you can make terrific Super 16 images. But, if you are careless with anything, it collapses." ■

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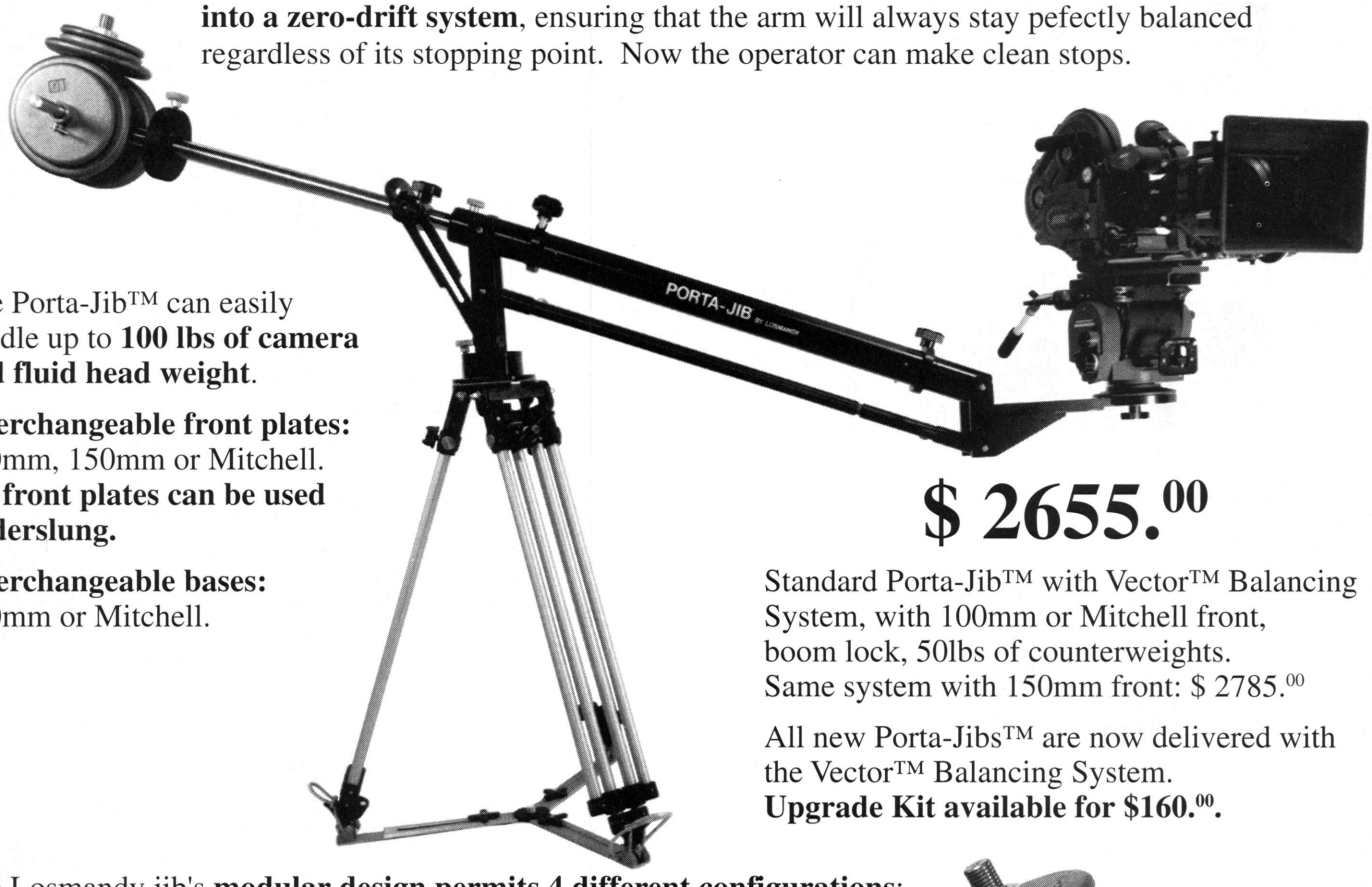

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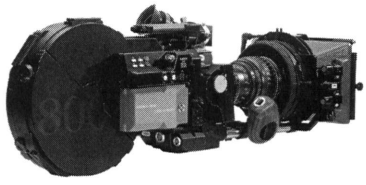

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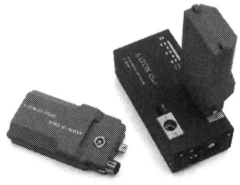

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Production Slate

compiled by Andrew O. Thompson

Baby (Karen Mok, above) and the Agent (Michele Reis, far right) adopt seductive poses in Wong Kar-Wai's *Fallen Angels,* which was shot in Hong Kong. Cameraman Christopher Doyle, HKSC utilized Fuji stocks to achieve a "colder" color palette.

A Jazz Session with *Fallen Angels*

by Patricia Thomson

Though Christopher Doyle, HKSC has worked with a slew of China's top directors — including Chen Kaige, Edward Yang, Stanley Kwan and Stan Lai — the Australian-born cameraman notes that it's Wong Kar-Wai who most encourages him to improvise. "I've always been jealous of jazz musicians," admits Doyle. "They can just get with their instruments, jam, and have this incredible experience. I think that's what our films are moving towards — a jam session with solos and everything else."

Along with production designer William Chang, the cameraman has enjoyed jazz-like collaborations with Wong on his features *Days of Being Wild, Ashes of Time, Chungking Express, Happy Together* (winner of Best Direction honors at last year's Cannes Film Festival) and *Fallen Angels*, which is in current Stateside release through Kino International. A supreme stylist, Wong prefers directing without a shooting script or storyboards; he routinely sets sail with an idea, a mood, some written dialogue, and perhaps a song. During preproduction, the director has been known to give Doyle a CD rather than a script for visual reference. From Wong's point of view, nonverbal communication works best. "At first, I would tell Christopher about the stories, but he always missed the point — I have to communicate with him in different ways," asserts the director. "So I would send him music [and] tell him that this is the rhythm of the film. He picked it up really quickly, because he's a good dancer, and he knows how to dance with the camera."

Originally, *Fallen Angels* — the tale of a professional hit-man and his agent — was conceived as the third strand of the two-part *Chungking Express*; both films were shot entirely in Hong Kong. According to the director, who does his scouting accompanied only by Doyle and Chang, "the city itself is the main character." *Fallen Angels* depicts a metropolis filled with fast-food joints and glowing neon, smoky bars and inconspicuous hide-outs — anonymous urban spaces populated by loners who rarely connect. Many sites are extremely small spaces: scenes were shot inside a city bus, an ice cream truck, a four-foot wide noodle shop, and in numerous corridors and subdivided interiors.

In the smaller spaces, Doyle used an Arriflex 35-III to supplement his Arri 535 and BL-4. He observes, "My experience is that the location is the most important determinant of my lighting style. Everything falls into place once we find the right space; certain spaces will usually suggest a certain mood, and if you go with that [feeling] you'll find that it will work. Of course, certain spaces make incredible suggestions that you would never have thought of yourself. The job is to see the possibilities and go with them; going with the flow, by the way, is a very Chinese philosophy."

In most other respects, however, Wong and Doyle wanted *Fallen Angel* to be visually distinct from *Chungking Express*. While the earlier film had been shot on discontinued Agfa XT320 stock, the cinematographer this time utilized Fuji Super F-250 8551 for its "colder" feeling. More significantly, he and Wong decided to use wide-angle lenses on all but one tracking shot. "To me, the 18mm was a long lens," Doyle notes. "We were usually on a 9.8 with an adapter, which brought it down to 6.3mm — almost a fish-eye."

On the first day of shooting, Doyle employed this special lens for one of the film's final scenes: as the dejected Agent (Michele Reis) sits in a noodle shop, doped to the gills and slouched over a noodle bowl, her nose looms large in the fish-eye lens; over her shoulder, meanwhile, a fistfight erupts. "[While shooting,] Wong Kar-Wai kept saying 'Go in closer, Chris.' We tried a 9.8mm lens, then we put the adapter on." The lens was so wide that "I saw my left eye

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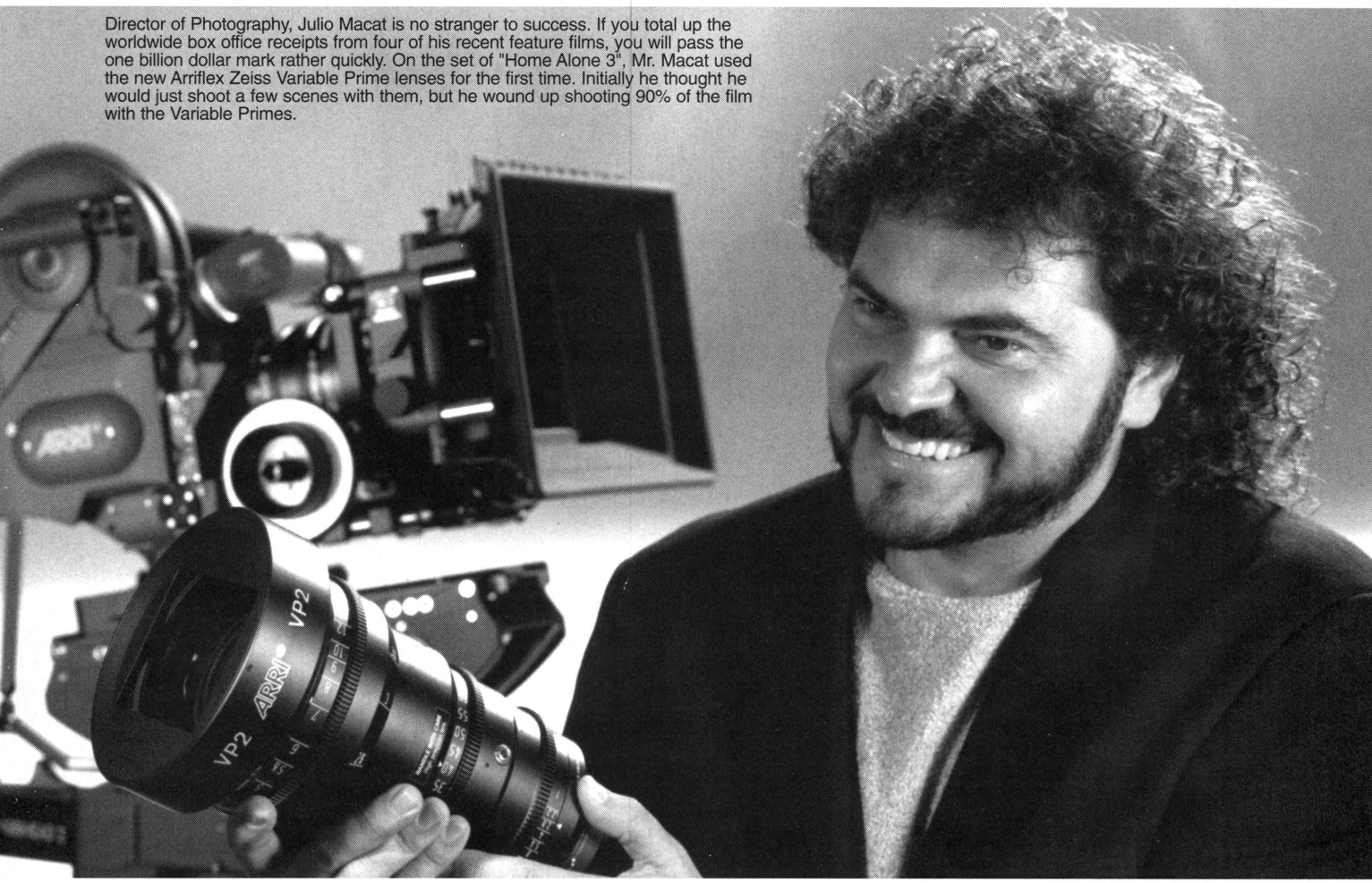

Director of Photography, Julio Macat is no stranger to success. If you total up the worldwide box office receipts from four of his recent feature films, you will pass the one billion dollar mark rather quickly. On the set of "Home Alone 3", Mr. Macat used the new Arriflex Zeiss Variable Prime lenses for the first time. Initially he thought he would just shoot a few scenes with them, but he wound up shooting 90% of the film with the Variable Primes.

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through the viewfinder. It was really funny to watch the camera assistant because he was basically leaning against me with his hand sneaking around the lens because everything was in-shot. He had to stand behind me to do the focus pulling.

"Since she [actress Reis] is part Chinese and part Portuguese, she has more of a Western nose. So when she turned to the left of the camera, her nose was so exaggerated it would almost go out of frame!" says a laughing Doyle. "I said to Wong Kar-Wai, 'We can't let her see this.' My usual job is to beautify an actress, and we were making her look like Pinocchio. But at that moment, I thought, 'Okay, this is what we're doing.' I was scared, you know, but after 8 or 10 hours of shooting, I got used to it. And if I got used to it, the audience will get used to it."

Despite their stylization, most Wong Kar-Wai films are put together in a surprisingly simple hands-on fashion. Most visual effects are created in-camera, and those which occur in *Fallen Angels* will be quite familiar to Wong Kar-Wai fans, particularly the undercranking done during fight scenes in order to create what Doyle calls "the adrenaline rush of violence."

For a two-minute black-and-white shot of a couple sitting at a bar, for example, Doyle again employs said technique to create a dreamy, romantic image of unrequited love. The girl gazes off into space, thinking of someone who jilted her; the man realizes feelings of love and slowly passes his hands around her oblivious head and body, always a fraction of an inch away from an actual caress. In the background, a swarm of people incongruously run around the bar in extreme fast motion; on the image's periphery, the forms wobble and melt as if underwater.

Doyle reveals that the image is, in fact, "under" water. The camera was set up on the sidewalk, looking through the bar's plate-glass facade. Water was sprayed on the window's edges as the actors played out the scene inside. Doyle then shot at four fps while the two lead actors moved six times slower than normal. In the background, meanwhile, 30 extras scampered around the bar. But since the scene lasts two minutes and was shot at four fps, the extras had to be in action for 12 minutes straight for each complete take.

Further elements in *Fallen Angels* were accomplished in similarly low-tech ways. For instance, rather than doing a tape-to-film transfer in order to intercut some Hi-8 footage shot by one character, Doyle simply photographed the material in 35mm off a video monitor. True, this approach created another visual texture, but it also saved the production additional expense. "Sometimes people are just too romantic about style," comments Wong. "Style is influenced by both the money and the situation."

Such situations are occasionally disasters in the making, as was the case when an assistant accidentally fetched some expired film stock, which the production unknowingly shot and processed. Upon discovery of this gaffe, Universal Labs technician Carmen Lui suggested duping the spoiled stock onto high-contrast black-and-white emulsion, for printing back onto color film. Since including only one such scene would seem odd, Doyle devised a thematic solution. "My idea was that each character have some kind of black-and-white scene," the cinematographer explains. "The cathartic moments — when they realize who they are — are in black-and-white. That's how we tried to get away with the mistake. That's the freedom of working with Wong Kar-Wai. In the Hollywood world, the assistant would have been fired, and then I would have been fired."

Fortunately, Doyle seems to thrive on these types of creative challenges, which have led to his "less-is-more" lighting philosophy. "We usually go pretty much with what there is, and augment it in a very discreet way — if at all," he describes. And sometimes he even subtracts from what little light he has: "This so-called 'sculpting in light' is really true. Like sculpture, sometimes the more you take away, the more you get."

Minimal sources were utilized when the agent and killer meet for one last time in a bar — just the crowns of

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their heads and bits of face emerge from the inky darkness. The location was a mirror-filled topless bar, and a zoom lens was being used to move between the characters. As usual, Doyle began with ambient light, bouncing fluorescents from under the bar counter, and then out of the frame. "I had a couple of Dedo lights to bring up the characters and give them a rim light. It was very simple; we were anti-crosscutting."

After several years of shooting both features and music videos for the innovative Wong Kar-Wai, the cinematographer concedes that this partnership has taught him two rather valuable lessons. "One is the importance of location. The second thing is that there's never enough money. So you end up saying, 'Well, why don't you take away some lights?' That's been a great, liberating push."

The Two Faces of *Mrs. Dalloway*

by Debra Kaufman

Above: Soft light from Kino Flo Wall-O-Lite units proved flattering for actress Vanessa Redgrave. Above right: Shooting in historical homes to simulate the Victorian era required inspired lighting setups. Bottom right: Director of photography Sue Gibson, BSC.

Virginia Woolf would have no doubt approved of the stellar team assembled to bring her book *Mrs. Dalloway* to the silver screen: Marleen Gorris, director of the Academy Award-winning *Antonia's Line,* cinematographer Sué Gibson, BSC and actor Vanessa Redgrave. For Gibson, the Woolf project was a serendipitous match. Not only had she already shot a TV film version of another Woolf book — *A Room of Her Own* — but Gibson had just been invited to become the first female member of the British Society of Cinematographers. Downplaying that aspect of the invitation, Gibson quite simply expresses gratitude at the honor. "It was quite a surprise when they asked me," she says of the BSC's membership offer. "When you start out [in the business], you hold all of these people in great esteem. I was quite taken aback when I was asked to join them."

Gibson, however, is used to being a trailblazer. While studying at London's National Film School in the late Seventies, she was one of six women among the school's 75 students. After graduation, she worked as a second assistant for a few years until cameraman Ian Wilson introduced her to commercial director Howard Guard, who gave Gibson the opportunity to light several television spots. In 1990, director Peter Chelsom, for whom Gibson had shot commercials, gave the cinematographer her first opportunity to film a feature — *Hear My Song.* Next, she shot director Dennis Potter's last film, *Secret Friends,* and then took four years off before returning to the industry with *Mrs. Dalloway.*

This Woolf adaptation is not simply a period piece, but rather a two-period piece which examines the affairs of mature matron Clarissa Dalloway as she reflects on her earlier years of womanhood. Though the principal action occurs through the course of a single day in 1923, the film also relies on extensive flashbacks to the 1890s and, to a lesser degree, World War I. With production designer David Richens, Gorris and Gibson examined magazines and books from those eras as collected by Richens; the cinematographer also perused photographs from the 1930s and 1940s for inspiration as well. The production team determined that the two eras couldn't have been more different in terms of light and palette: the dark, cluttered Victorian 1890s had homes full of heavy furniture and closed drapes; the lighter, airier 1920s were almost stark, featuring pale pastel colors.

To distinguish the two periods, Gibson decided upon different brands of film stock: the darker, deeply-hued 1890s were captured with a combination of Kodak's EXR 5245 and 5297, which she describes as "two richly colored stocks very complementary to reds and yellows." For the lighter, airier 1920s, the cinematographer found that Fuji's stocks

— tungsten-balanced Super F 500 8571 and 250T 8551, and daylight-dalanced F-250D 8561 and F-64D 8521 — "had a softer quality and was very complementary to blues and greens."

Gibson details her use of the differing stocks, noting, "The approach was sympathetic to the character of Mrs. Dalloway, and how as a young girl she's full of hope, life and enthusiasm; eventually, she becomes softened by it all. I thought that the lighting ought to make it appear that the younger woman had more energy. All of these sequences

were shot on Kodak, which is quite a strong film stock, because I wanted a completely different look without saying, 'This is a flashback, so let's do it in sepia or black-and-white.'"

To further differentiate the respective eras, Gibson shot the "flashbacks" without any filters, which helped capture the colors' full richness while also conveying the vitality of Clarissa, her

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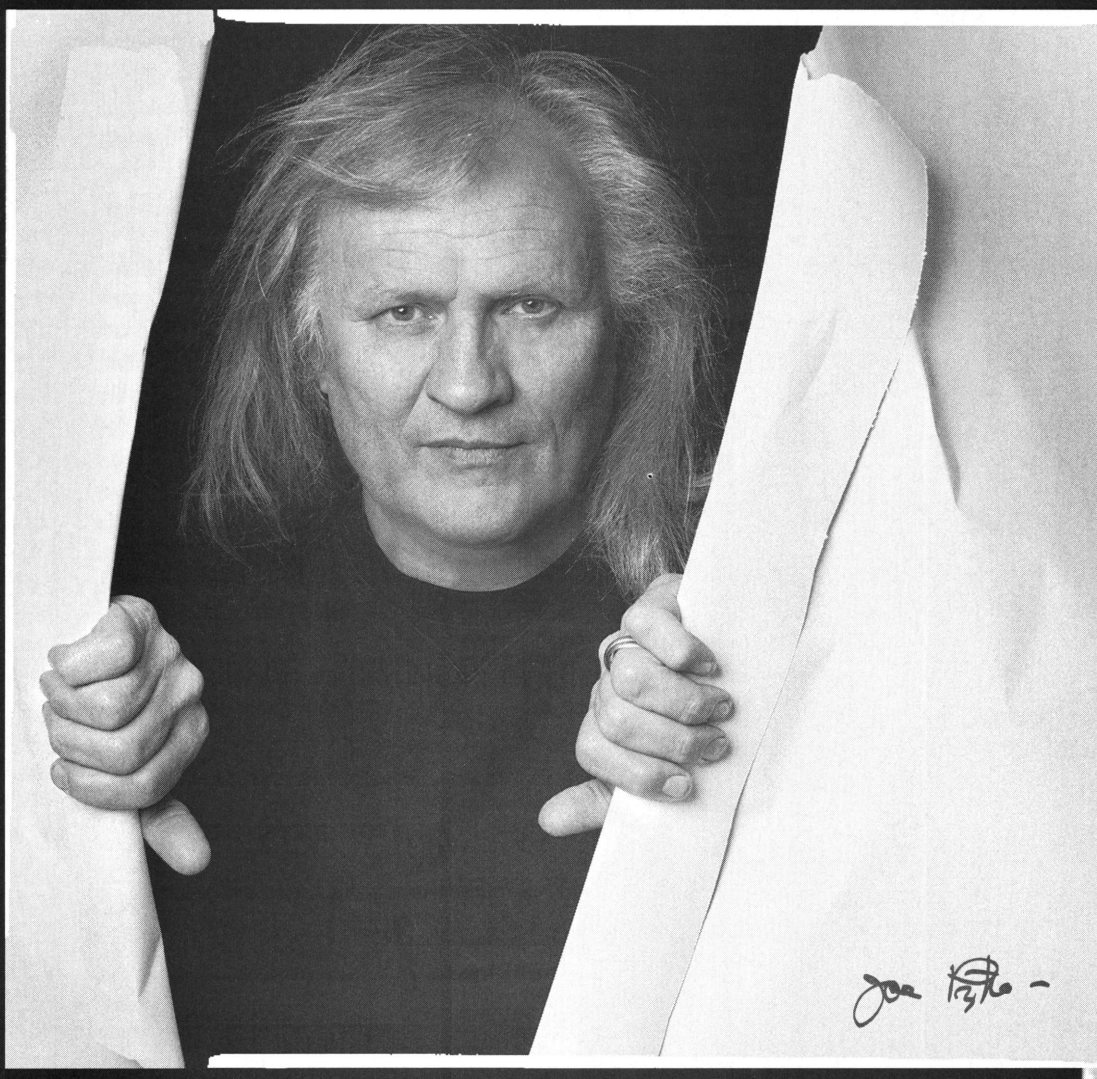

Joe Pytka grew up in a mill town near Pittsburgh. He has processed newsfilm, been an editor, animator, sound mixer, made documentaries, commercials, music videos and a couple of movies, and generally has had a great time.

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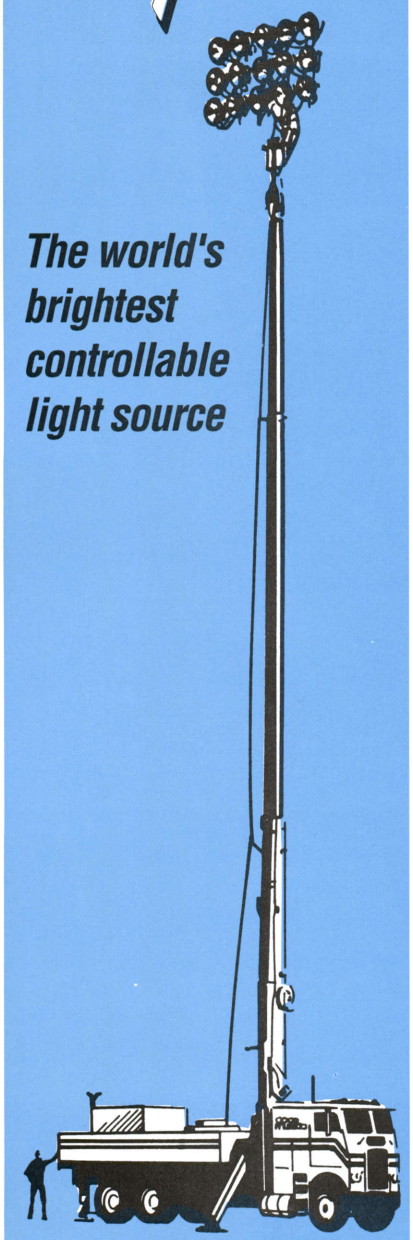
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young friends and their suitors. For the 1923 scenes, Gibson used Tiffen Soft Effects filters "to give a slightly more romantic quality — that pastel look" and also "to be more forgiving on faces," particularly that of protagonist Redgrave.

Gibson shot *Mrs. Dalloway* with a Panaflex GII, the chief rationale being that she could employ Primo lenses, which, she opines, are halfway between "old-fashioned lenses like Cookes that have a very subtle, rounded quality to them and the Japanese [Canon, Nikkor] lenses, which I find quite sharp, hard and brittle. Primos also give a very clean quality to the image, which is what I wanted for the 1920s period."

Production began in July of 1996, but financing collapsed 2 1/2 weeks later and shooting ground to a halt. Gorris, Gibson and other department heads hung on until First Look Pictures took over financing. Production then recommenced for a total of eight weeks. Gibson credits the "100-percent support" of Panavision, Lee Electric, Rank Labs, Kodak and Fuji for helping her make it through the "living nightmare" of this part of production.

However, by the time cameras began rolling again, Gibson had committed to another project, so cameraman Tony Pierce-Roberts, BSC (*Howard's End, Surviving Picasso*) filled in for her over three days.

Nearly the entire film was shot on locations which posed some sort of specific challenge. A private country mansion situated several miles from a main road served as Clarissa's childhood home. Unfortunately, the abode sat beneath the flight path of Heathrow Airport, forcing the director to forsake her preference for direct sound and plan on doing ADR work. London's James Park was perfect for the 1923 park scenes. But as it is located near Buckingham Palace, the filmmakers were prohibited from bringing a car onto the grounds: all equipment had to be carted in.

Mrs. Dalloway's London house, which was built by Robert Adams, a well-known architect of the era, was another outstanding find. Though positioned only 100 yards from a main arterial road into London, the home nonetheless sat in the car-free Fitzroy Square. The heritage building was also listed as a preservation site, which greatly restricted rigging efforts. Gibson lit the climactic party scene (shot by Steadicam operator Alf Tramontin) by floating two rectangular "sausage" helium balloons (acquired from Leelium Balloons Inc.) up into the ceiling. According to gaffer Paul Borg, each was fitted with eight 1K halogen lamps which emitted a soft light. Rigging gaffer David Hughes also carefully constructed a simple, furniture-friendly rig upon which lights could be hung: it consisted of two bars running along the walls — padded, painted and draped to look like part of the architecture — with a bar hung between them close to the ceiling. On the bar, Borg hung a few dimmer-controlled 2K Juniors, 1K Pups and 300-watt Mizors.

Vanessa Redgrave required special lighting for both the party sequence and other close-ups. Borg used KinoFlo Wall-O-Lite banks since they could be easily hidden in rooms, generated little heat and created a flattering soft-light effect.

Illuminating the daytime interiors was somewhat more straightforward. Borg put two 6K Cinepars on the roof of a house across from the Dalloway home with another 6K Cinepar on an adjacent cherrypicker. At the front of the house, he placed two 18Ks on a tower. After some legal wrangling, permission was received from the Council (housing authority), to place two cherrypickers on the pavement in front of the Dalloway house so that two 2.5K LTM HMIs could be aimed through Mr. Dalloway's bedroom window.

Needless to say, England's notoriously variable weather also created its own dilemmas. A mid-summer shoot and lots of luck allowed Gibson to get away with numerous outdoor shoots without much rain. "You're very much in the lap of the gods," the cinematographer remarks. "You know what kind of atmosphere you want to create, but you can't stop the sun from moving around. You have to be able to incorporate what-

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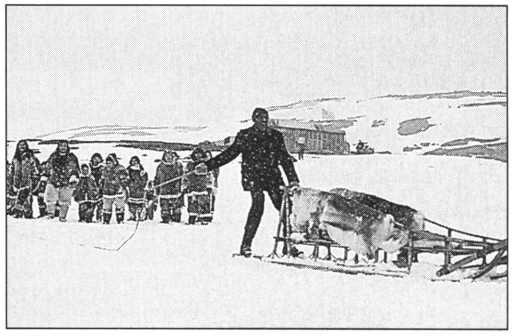
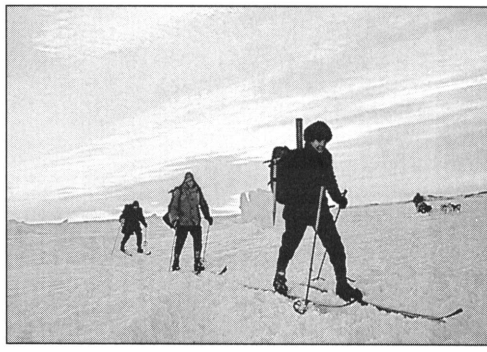
ever the weather is doing with the feeling of the scene. I always try to enhance the mood without changing it dramatically from what the real daylight is doing."

The film's fluid camera style made it impossible to place lights in many interior scenes. Relying largely on natural light, however, also entailed risks. In one scene, for example, the young Clarissa runs down some stairs, through a hallway and into a drawing room. The plan was to illuminate the scene mainly with natural light, which Gibson managed to achieve with only a little additional augmentation. Gaffer Borg hid an 18K behind an exterior wall, bouncing the light back into the room through the windows with a 12' x 12' frame. From a tower, he aimed another 18K through a top window. He would have preferred using a stronger source, such as a Cinepar, but that could have damaged the old mansion's rare glass windows.

In other 1890s sequences, Gibson wished to create a moody — but not gloomy — atmosphere. For a romantic scene in which the young Richard gives Clarissa a bunch of roses, Gibson once again relied primarily on augmented natural light: supplementation came via one strong backlight — an 18K set 13' up on a Molevator — enhanced with a bit of fill provided by a 12' x 12' matte-white Griffolyn exclusively made by Lee Electric for Gibson, who dislikes the shiny plastic Griffolyns.

Gorris and Gibson believe the results of their labors to be a film whose meaning stretches far beyond its period settings to the present day. "The interesting thing about Mrs. Dalloway is that her problems and the problems of those people are very much the same problems of today," concludes Gorris. "As a director, you're the sum of who you are, and the way you look into the distant past. You always bring a piece of who you are now into your work."





Sub-zero weather conditions limited equipment options for cinematographer Douglas Milsome, BSC while shooting the telefilm *Glory and Honor* on location in a remote region of the Canadian Arctic.

A Polar Quest for *Glory and Honor*
by Jean Oppenheimer

Last year proved itself a period of extreme geographic contrasts for Doug Milsome, BSC (*Breakdown*, *Robin Hood — Prince of Thieves*, *Full Metal Jacket* and TV's *Lonesome Dove*.) The English cameraman recently returned from the Sahara desert, where he shot the action picture *Legionnaire* under the merciless Moroccan sun. Three months earlier, he had braved sub-zero Arctic temperatures for *Glory and Honor*, a Turner Network Television movie about the first successful expedition to the North Pole.

Glory and Honor is the film biography of Matthew Henson, the unsung hero of the famed 1909 expedition to the globe's northernmost tip. American Navy Admiral Robert Peary (Henry Czerny) is generally credited with being the first man to reach the Pole. What few history books disclose is that he was accompa-

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nied by African-American explorer Henson (Delroy Lindo), a former valet of Peary's without whose expertise the trip would have foundered. *Glory and Honor* strives to correct the historical record and acknowledge Henson's indispensable contributions to this mission.

More than half of the movie was shot in the Canadian Arctic, near the town of Iqaluit, on Baffin Island's Frobisher Bay, where springtime temperatures (production occurred in April and May) ranged from a high of -10°C to a low of -70°. Not surprisingly, the remote location's bitterly cold temperatures placed fairly unique demands on the production.

"All of the camera equipment had to be transported on sleds called *komatik*, which couldn't take more than 350 kilos because the ice could crack," says Milsome. "Cranes and big lamps were out of the question. My entire lighting package consisted of two 4K Arri Cinepars. I had only two blimped generators, each of which could run a single lamp. Hitched together on two sleds, the generators gave me only about 400 kilowatts. I enhanced that with a few supplementary battery-operated HMI sun gun-type jokers."

These small lamps proved only a sporadic aid, however, as they didn't fare well in the frigid conditions. And due to the quick drainage of batteries in extreme cold, the portable power packs had to be continually recharged.

Fortunately, the film's wide daylight exteriors didn't require much artificial lighting. "The only thing we needed lights for was to add fill on Delroy, who soaked up [the light] and needed a little extra," remarks Milsome. "I used very clean, white light on him, mainly from the two Cinepars, which I aimed through a soft screen — either a light grid cloth or 216 — or bounced in with a 12' by 12' soft Rosco reflector. There were some moving shots when I walked a lamp with him; we'd put one on a stirrup and carry it by hand."

During the shoot, the weather gods were in a generous mood. With the exception of three partly sunny days, the skies remained cloudy and white, which fit the production's needs. Notes director Kevin Hooks (*Passenger 57, Fled),* "The more sunlight we had, the harder it would have been to sell the cold, since people naturally associate sunshine with warmth." Adds Milsome, "Overcast days gave us a more hostile, alien, environmental sense of total isolation, which is what we wanted."

The low clouds acted as a massive scrim over the sun, giving off a wonderfully soft ambient light. However, Milsome used Pola screens to penetrate the abundance of UV illumination found in the Arctic. "I also used neutral-density filters to cut the exposure generally," notes the cameraman. "I used an N9 with an 85 filter, sometimes an 85 plus an 812 — which is like a half 85 — to cut the blue spill at those longitudes."

With the ground covered in snow and the skies offering a similar shade of white, the horizon frequently became indiscernible. "Usually the sky was a bit darker than the ground, but we didn't try to separate them; we used the look," recalls Milsome. "People got lost in the whiteness. These figures in their black outfits against the white looked extraordinary." To create a blizzard effect, though, the crew had to give Mother Nature a helping hand by deploying three large Rotax wind machines. "For environmental reasons, the 'snow' couldn't be paper or polystyrene, so the special effects boys used McDonald's potato flakes," says Milsome with a laugh. "It was horrible, because when it got wet it turned into mashed potatoes."

Though the script called for some night shooting, the springtime North Pole experiences 19 hours of daylight and a mere five hours of darkness — the sun starts to set at around 10 p.m. and resurfaces again at 3 a.m. These short nights didn't present much of a problem, however, since transporting large lighting units to the location was inconceivable. "Shooting at night, you would normally want to create a big moon that could wash the entire area and give you an overall ambient, gentle look," muses Milsome. "But we couldn't get that [kind of gear] up there. I simply didn't have the lamp power for nightscapes." One con-

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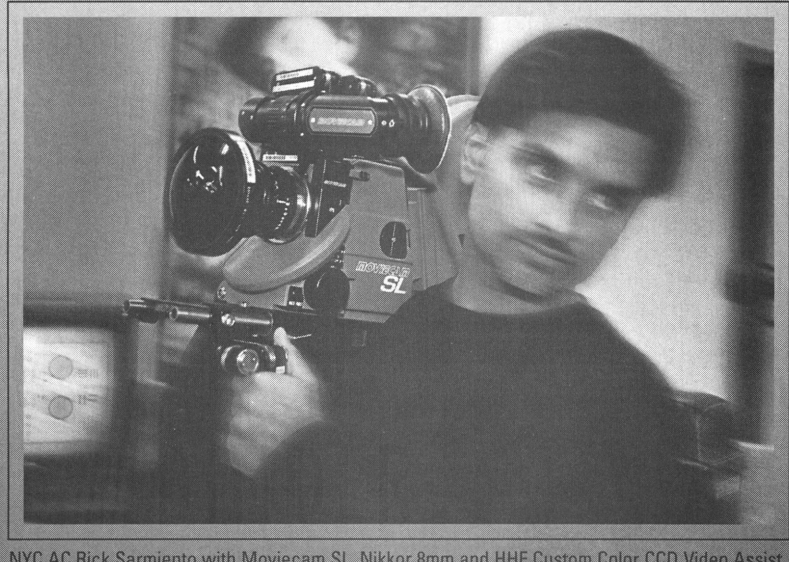

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ceivable alternative — shooting day-for-night — also proved impossible, given the almost solid white background of earth and sky. "To do day-for-night you really need to have a blue sky that you can pull down," explains the cameraman. "When you have a white sky and a white floor, it's still white — no matter how much you darken it. Whereas if you have a clear blue sky, you can deepen the sky immensely through filtration and polarization." Instead of trying to simulate darkness, Milsome created what he calls "Arctic night:" the kind of deep blue twilight which might occur under an incredibly full moon.

Aware of the difficulties of loading and unloading film in glacial climes, the cameraman decided to stick with one film stock for the production's duration. After testing several stocks (as well as experimenting with different ASA ratings), he opted for EXR 5293, which he describes as a "very good, all-around negative with great latitude."

The extreme elements demanded special protection for both man and equipment. Milsome, for one, wore 40 pounds of clothing and moon boots. Traveling to and from location — half an hour each way by snowmobile — he wore a crash helmet with a heated mouth covering which warmed up the air before it was inhaled, thus protecting his lungs from freezing. The camera gear also required special heating systems. "The main concern was keeping the film inside the magazines from getting too cold and brittle," says Milsome. "We had heater barneys for the magazines and heated base plates under the cameras, as well as heaters for the zoom lenses."

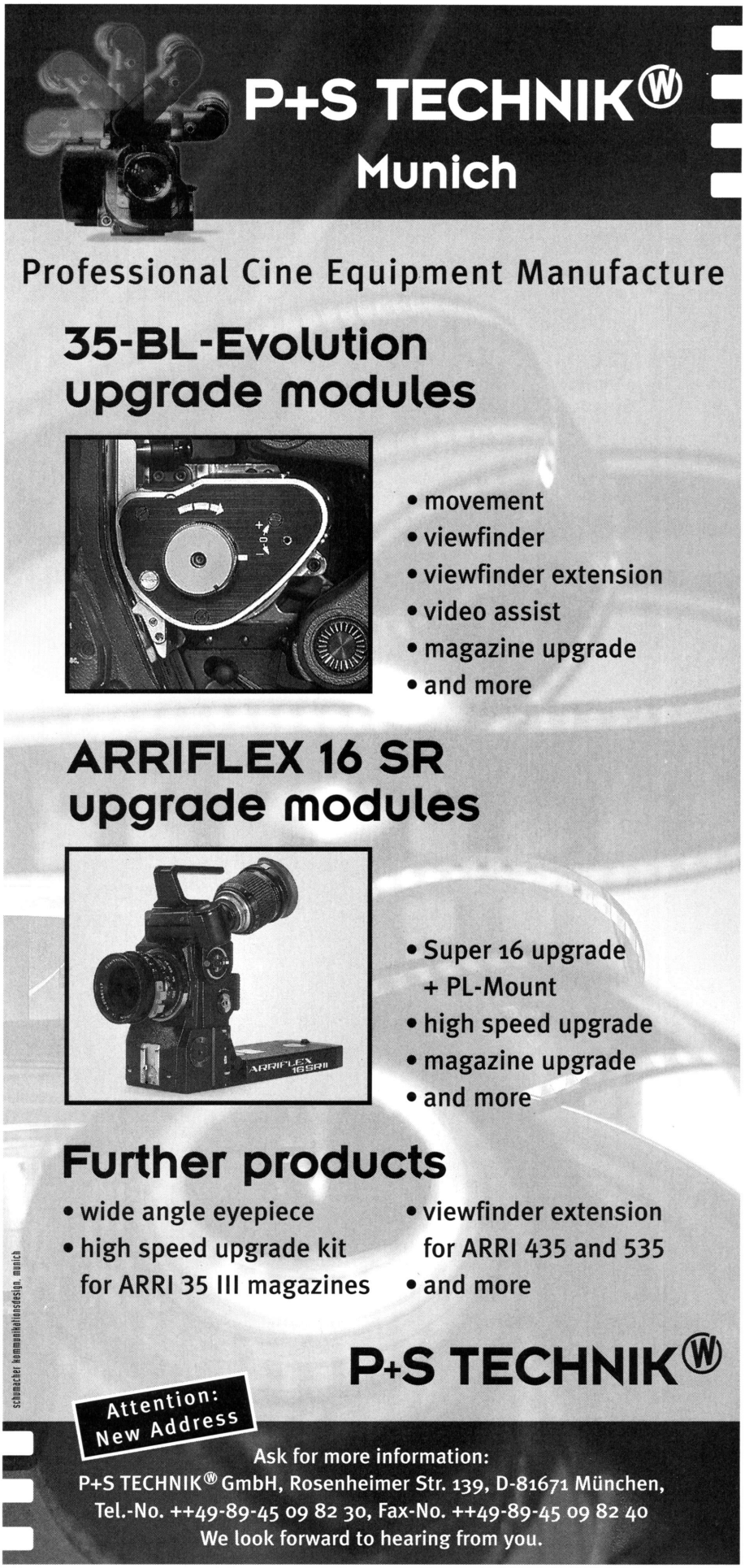
The camera equipment came from Clairmont in Montreal, Canada. The package consisted of two Moviecam Compacts (one of which was broken down for Steadicam use), and three Arriflex units — a IIC, a IIIC and an Arri 435. "The Moviecams were winterized and went down to -70°C before getting into trouble, which is one reason I went with them," reports Milsome. "A lot of cameras would misbehave in those temperatures, but the Moviecams just kept

plowing on. They are also light, portable and quiet."

Although the frame is seldom static in *Glory and Honor*, the camera remained on a tripod most of the time. "To get through a television schedule, it has to," Milsome comments. "Kevin has a good eye and he likes to move, so we panned a lot." Zeiss lenses were alternated with Cooke Varital zooms. Milsome generally prefers using primes, but changing lenses in the cold was also too taxing, as was laying tracks in the deep snow. A Steadicam was used instead.

Milsome repeatedly praised his "amazing crew," which consisted of operator Kevin Jewison, Steadicam operator Jacques Bernier, first assistant Ernest Spiteri, second assistant Paul Gravel and second second Christian LeMay. "Focus pullers are always the unsung heroes on these jobs," he notes. "They aren't just pulling focus; they're keeping the cameras running, which wasn't easy on this production. We had to keep the cameras outside in a shed because if they came inside where it was warm and then went out again they would steam up and you could never clean them up." He also singled out British cameraman Harvey Harrison, BSC, who served as the second-unit director/cinematographer and photographed all of the expeditionary material.

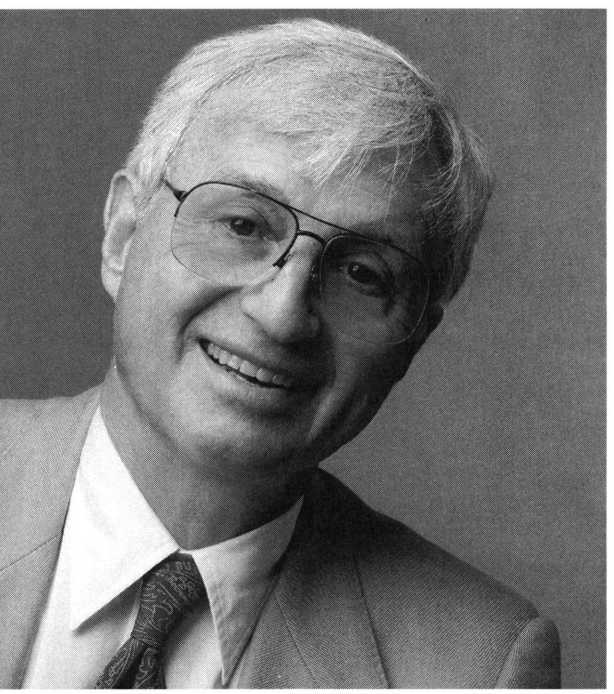
The cameraman looks back contentedly on the past year, drawing parallels between the far-flung locales in which he worked. "The extreme heat versus the extreme cold," Milsome reflects. "The sand and dust of Morocco actually reminded me of the Arctic, maybe because in both places you can turn around 360 degrees and only see horizon: the scenery was exquisite. For a cinematographer, there were so many refreshingly new pictorial opportunities to capture." ■



A Fitting Candidate for Kudos

The American Society of Cinematographers salutes the career of Victor Kemper with its 1998 Lifetime Achievement Award.

by Bob Fisher



Portrait by Douglas Kirkland.

Over the past 27 years, director of photography Victor J. Kemper, ASC has compiled 52 major feature film credits. His eclectic body of work ranges from stark drama to outrageous comedy, and includes such diverse titles as *Husbands, They Might Be Giants, The Candidate* (see *AC* Sept. 1972), *The Last of the Red Hot Lovers, Dog Day Afternoon, Stay Hungry* (*AC* Feb. '76), *Audrey Rose, Slap Shot, Oh God!, The Jerk, The Four Seasons, Mr. Mom, Pee Wee's Big Adventure, Clue* (*AC* Jan. '86), *Author! Author!, See No Evil, Hear No Evil* (*AC* July '89), *Beethoven,* and *Jingle All the Way.* In honor of his career efforts, the American Society of Cinematographers has named Kemper the recipient of its 1998 Lifetime Achievement Award.

"This award is given to an individual who has made substantial and unique contributions to advancing the art of cinematography," says former ASC President Owen Roizman. "I can't think of anyone who is more deserving. Victor is an amazingly talented artist. Many cinematographers can point to 5, 10, or 15 good or great films where they made important contributions. Victor has done it year after year."

Kemper will be honored at the 12th Annual ASC Awards event, to be held on March 8 at the Century Plaza Hotel in Los Angeles. With this prize, he joins a distinguished club of previous Lifetime Achievement Award winners: Roizman, Sven Nykvist, Gordon Willis, Conrad Hall, Haskell Wexler, Philip Lathrop, Charles Lang, Stanley Cortez, Joseph Biroc and George Folsey.

Kemper is the third Lifetime Award recipient in the past four years who launched his career in New York during the 1960s. His path to Hollywood was a circuitous one. Born and raised in Newark, New Jersey, he claims that he never went to the movies as a kid, except for Saturday afternoon serials. Instead, his interests lay in such activities as building radios. As a teenager, he

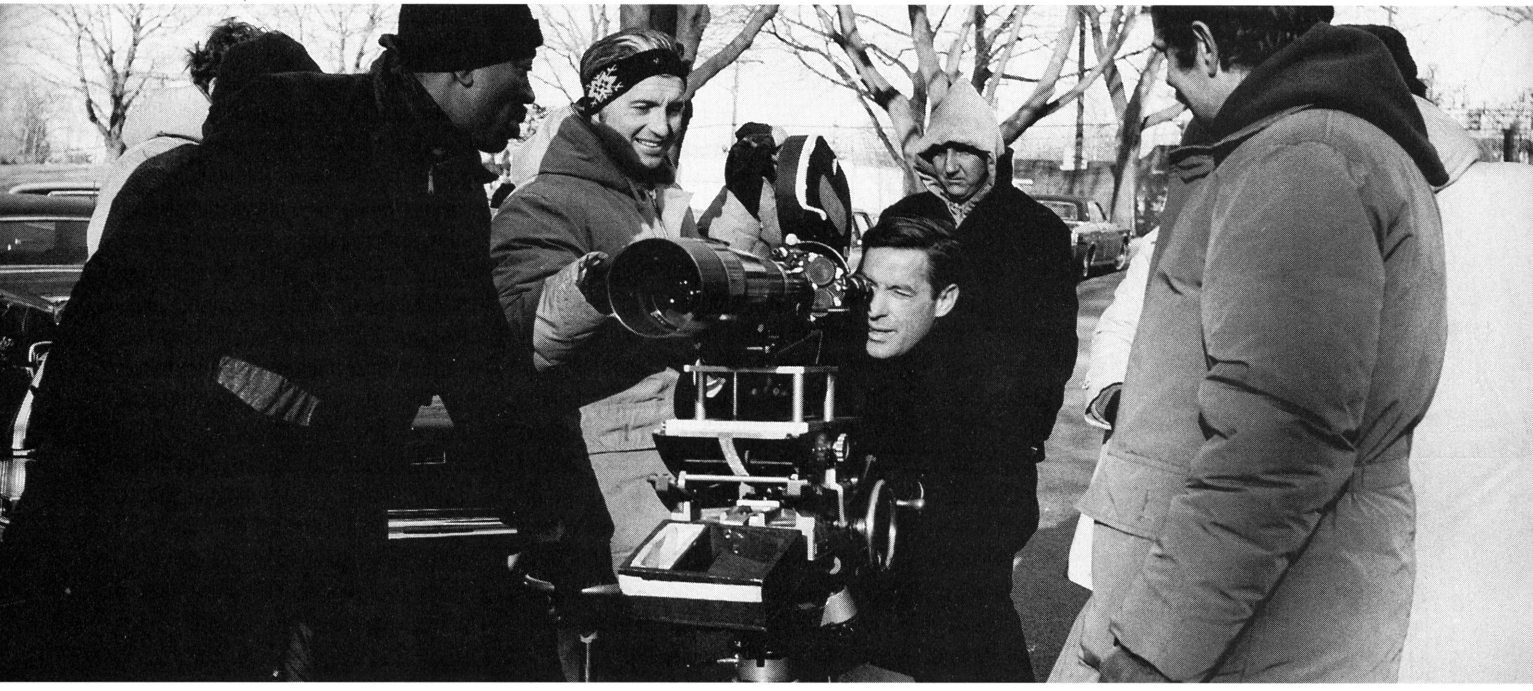
earned pocket money by repairing neighbors' malfunctioning television sets. After graduation from Seton Hall University, Kemper worked at a local TV station, where he operated a sound boom, mixed sound, repaired cameras and served as a floor manager and technical director on studio productions.

When the station was sold, Kemper went into business with a cousin, running a Florida hat manufacturing factory. He then took a position at a paint and lacquer manufacturing plant. Subsequently, however, the manager of his local TV station requested that he return to Newark.

In 1954, Kemper heard that Ampex had invented a two-inch black-and-white videotape system which was being touted as a replacement for film. When the company offered a two-week training course at its corporate headquarters in Redwood City, California, he asked the station manager to fund his trip. After the station reneged, Kemper quit his job and paid his own way to Redwood City. It was quite an audacious move for a young person with very little money, but Kemper was looking towards the future. He believed that Ampex's system marked the beginning of film's demise. In fact, *Daily Variety* announced the invention with the gigantic headline: "Film Is Dead?"

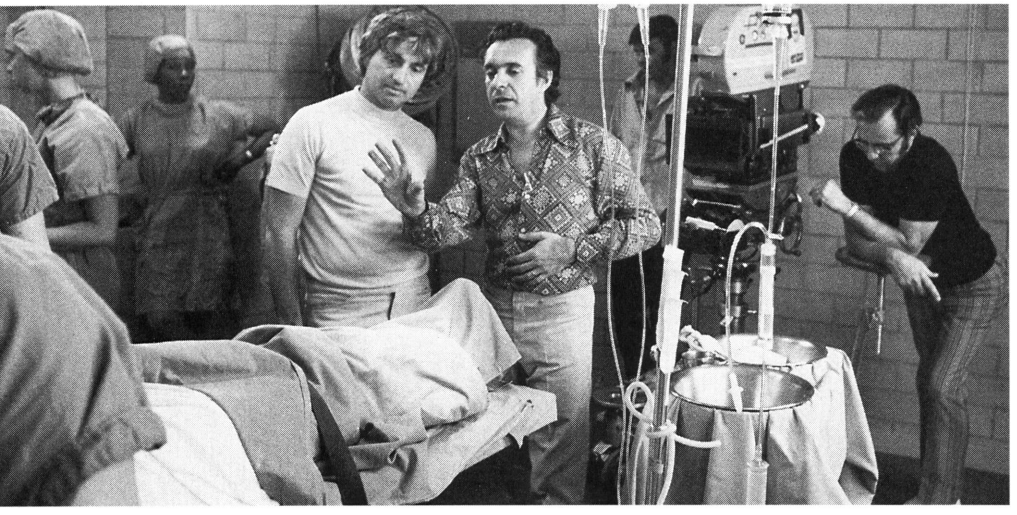
Kemper soon found himself in the unique position of being the only freelancer in New York City trained to use the new Ampex system. He was hired by EUE, the city's top TV commercial production company. Feature-film cinematographers from around the world were then shooting EUE spots, but when Screen Gems purchased the company a few years later, the video department was eliminated. With the aid of a financial backer, Kemper and an EUE staff director purchased a quarter of a million dollars' worth of video hardware for $70,000. In a moderately successful venture, they produced commercials and duped tapes for about two years. But when their financial backer suffered a heart attack, business was closed.

Several cinematographers who



Kemper (center, with headband) gives director John Cassavetes (at eyepiece) a long-lens look while setting up a shot for *Husbands* (1969).

A Fitting Candidate for Kudos



Above: Kemper and director Arthur Hiller plot out some satirical emergency-room action for *The Hospital* (1972). Below right: Conspiring again, Kemper and Hiller work on the comedy *See No Evil, Hear No Evil* (1989). Opposite: Prepping with director Ulu Grosbard for some aerial work on *Who Is Harry Kellerman and Why Is He Saying All Those Terrible Things About Me?* (1970).

had met Kemper at EUE put him to work as an assistant cameraman. He quickly advanced to become a camera operator for Arthur Ornitz, ASC. Kemper initially worked on commercial crews; his first narrative experience was as an operator for Ornitz on the 1964 ballet film *A Midsummer Night's Dream,* performed by the New York City Ballet. During the next several years, Kemper worked as a camera operator with Ornitz on *The Tiger Makes Out, Charley and Me* and *Natalie,* and with Michael Nebbia on *Alice's Restaurant.*

These jobs provided Kemper with seminal experiences. Ornitz himself was a minimalist in his use of artificial light. "Arthur believed that the fewer lamps you used, the better it was because that gave you freedom to move the camera without creating shadows that couldn't be accounted for by natural light," recalls Kemper. "I was much more interested in understanding why he wanted a particular look than in how he achieved it. I also watched how he related to people, including directors, actors and his crew, which is a big part of the job."

Kemper's breakthrough came in 1969 when he was hired to be the standby cinematographer in New York for Aldo Tonti, a talented Italian cameraman who was slated to shoot *Husbands* for John Cassavetes. Kemper was reluctant to take the job because he was riding a hot streak as an operator and didn't want idle time. But when the producers promised him that there would be a lot of second-unit work, he decided to sign up. Kemper started on a Tuesday, but by Friday he had yet to shoot a single frame. He informed the production office that he wouldn't be back on-set come Monday. That night, Kemper got a call asking if he could meet with Cassavetes. Kemper had invited Tonti to spend the weekend with his family at their New Jersey vacation home, but he agreed to meet Cassavetes at 9:15 a.m. the next morning.

Kemper arrived early. Five minutes before he was scheduled to meet with the director, Tonti walked out of Cassavetes' office. Tonti and Kemper chatted briefly, arranging to meet later. Then, with no preliminaries, Cassavetes asked Kemper to shoot *Husbands.* Kemper was stunned; Tonti was a world-famous cinematographer, but Cassavetes explained that the two of them couldn't bridge the language barrier. Later that day, Tonti assured Kemper that it would be okay for him to accept the offer.

"We shot more than a million-and-a-half feet of film during 10 weeks in New York and 12 weeks in London," Kemper says. "That's the way Cassavetes worked. The first shooting day was on a bathroom set that the designer had painted black. Only the fixtures were white. There was also a mirror. The male characters, in mourning for a friend who had just died, were all wearing black. I had the challenge of making black costumes against a black wall visible. There was no contrast. I asked John 'How on Earth am I supposed to light this set?' He answered, 'Why are you asking me? You're the cinematographer.'" Kemper solved the problem by using hotter-than-normal back- and sidelight, which created enough separation between the dark costumes and the wall.

Kemper's second film — and his first comedy — was *They Might Be Giants,* starring George C. Scott in the role of Sherlock Holmes and Joanne Woodward as Watson. "We

had wrapped production and spent every dime in the budget," he remembers. "The production manager called one day and said, 'We have a serious problem. We never shot any title footage.' He asked if I could do something without a crew."

Kemper told the prop man about the dilemma, and asked him to bring some lab equipment — test tubes, vials, vessels, flasks, tubing and burners — to his home in New

Jersey; the cinematographer had promised his family he wouldn't work for a few weeks, so to keep this agreement he decided to shoot the title background footage at home. General Camera delivered an Arriflex camera and lenses. Kemper put some plywood on top of his bed, and the prop man set up the glassware. They filled the tubes and flasks with bubbling water colored with different vegetable dyes. To create atmosphere, Kemper also used smoke and shot from "weird" angles. "I think it cost around $700 to shoot the background for the titles," he says, "and it was appropriate because Sherlock spent a lot of time in the lab."

The following year, Kemper shot *Who Is Harry Kellerman and Why Is He Saying All Those Terrible Things About Me?*, working with visual-effects supervisor Joe Westheimer, ASC. A portion of the picture demanded bluescreen matte work, necessitating that the two work closely together on certain sequences. Kemper arrived early for the first day of matte shots, and although he had never before done bluescreen photography, he began properly balancing the light on the screen until Westheimer's arrival. The dailies were perfect. Impressed, Westheimer checked on Kemper's previous pictures and, in 1971, nominated him for ASC membership. "It was an unbelievably emotional feeling to be invited to join the ASC, because the members were icons to me," remembers Kemper. "I'll always be grateful to Joe."

Kemper's roundabout career path finally led to Hollywood. "I never walked onto a soundstage in Hollywood until I shot *The Last of the Red Hot Lovers* at Paramount in 1972," he says. "It was a lot different than shooting in New York, where we didn't have Brutes, heavy-duty grip equipment and big trucks with everything on them. We had learned to work with less because it was the only way we could work. We shot *The Last of the Red Hot Lovers* for about 2 1/2 weeks in Philadelphia and then moved to Los Angeles. Lloyd Ahern Sr. [ASC] was my standby cameraman, just as I had been a standby for Aldo Tonti."

Kemper subsequently shot *The Candidate,* starring Robert Redford, in Northern California. Filmed almost entirely with two handheld cameras, the 1972 picture features a distinct music video/documentary feeling, though it was made long before MTV became the rage. The operators would "roam" while the sound man tried to keep pace. "Sometimes one camera got the other crew in the background," the cinematographer says. "We were roaming freely like news crews covering a campaign. We weren't signaling each other. We used what we needed and cut out the rest. We had used the same techniques on *Husbands* and most of the other pictures I'd shot up to that point. It was a different type of artistry with its own flow of movement. I was tired of the

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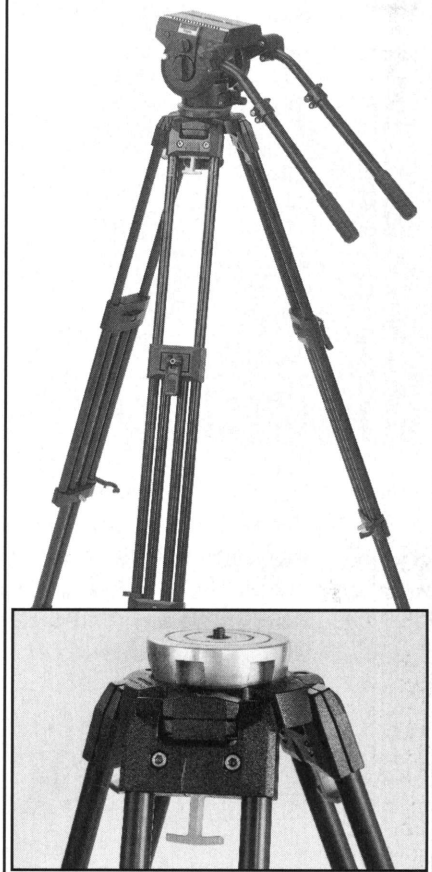

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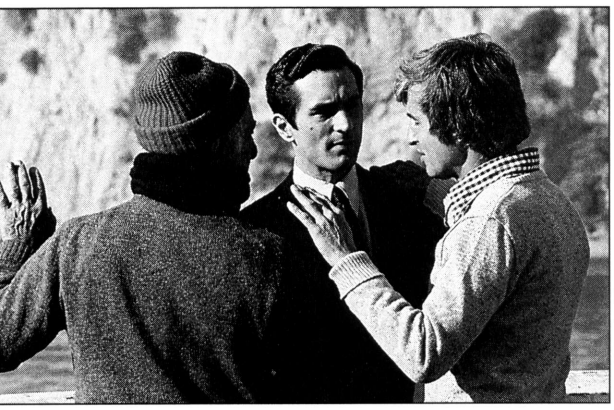
erratic handheld look, which is now having a renaissance, as though it was just discovered."

That same year, he worked on *The Hospital,* starring George C. Scott and directed by Arthur Hiller from a script by acclaimed writer Paddy Chayefsky. "He was a hands-on writer," says Kemper of Chayefsky. "He'd come on the set and ask what I was doing and why I was doing it. There was one six-page scene that we were going to shoot without any cuts, which would run for seven to eight minutes. We were rehearsing the scene in a metropolitan hospital in New York, and it was a monumental lighting job. We had to light the entire floor of this ward, which carried from the elevator to the nurses' station to the pharmacy — it was a very large area for a small hospital. Scott was cast as a doctor. In this particular scene, he peeks into a room to talk to one of the patients, and then walks all the way back across the nurses' station, past the elevator and into another room where it is reported that someone has died in bed. Scott then continues with a very emotional scene in which he asks how this death could possibly happen in a hospital. Arthur Hiller loved to move the camera, and I did as well."



Above: Kemper and director Elia Kazan discuss their options with actor Robert De Niro while shooting *The Last Tycoon* (1976). Above right: With director Robert Wise on the set of the psychological thriller *Audrey Rose* (1977). Opposite page: Kemper and director Sidney Lumet compose a shot for *Dog Day Afternoon* (1975).

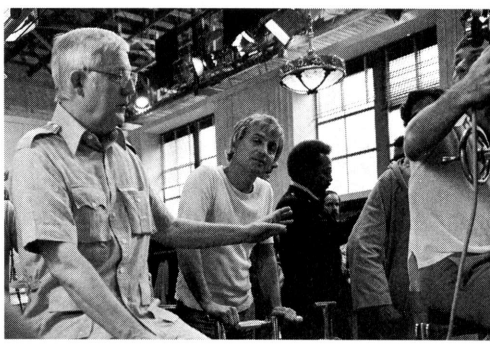
While Kemper was laying out the shot, Chayefsky arrived to offer his concern that the aggressive camera movement would detract from his dialogue. "I had to come up with a very good answer for him, or he would have gone to Arthur," Kemper reminisces. "I said, 'This doesn't take away from the focus of the dialogue. It goes with the dialogue. That's why the camera is moving.' He thought about that for a while and asked, 'Is that how the rest of the film is going to work?' I answered, 'Absolutely.' He was always involved. He wanted to know why or how the camera was helping his story, and that was a valid request."

According to Kemper, comedy is much more difficult to shoot than drama. "Timing is essential," he observes. "The reactions of people in the cast, the scenery and environment are all part of every joke. Everyone in the cast has to be looking in the right place at the right time, and responding flawlessly. That requires rehearsals, but if you overprepare, the humor loses its edge and it's not funny any more." He elaborates, "I'm not an actor, so I can't speak from their point of view, but I've seen the transition from the script to the spoken word many times. A good actress knows how to cry, and she has no problem repeating it time after time. But if a joke misfires and the audience doesn't think it's funny, you're on the road to disaster."

The Four Seasons is one of Kemper's favorite comedies because the film additionally featured a dramatic story that required a powerful presentation. He also admires *The Jerk* because actor Steve Martin made an implausible character believable.

In 1990, Kemper got behind the camera for *Crazy People* (*AC* May '90) a romantic comedy set in a mental institution. Dudley Moore starred as a burned-out ad executive who is stashed in a sanitarium for some mental fine-tuning, and Daryl Hannah appears as one of the resident "crazies." Director Tony Bill initially considered using a documentary style for the picture, but Kemper nudged him in the direction of a less oppressive look with sharp, crystal-clear images virtually devoid of grain.

Kemper notes that Hannah and Moore seemed an unlikely romantic couple, but in the movie itself an electric current seems to crackle between their characters. "Daryl is irresistible on film," he says. "You can model her face with light. She takes three-quarter sidelight from above the lens beautifully from either side. But Tony didn't want her to look glamorous — just beautiful and down-to-earth." Moore, on the other hand, looked best in flat light. On two-shots, Kemper lit Hannah first, and then flattened Moore's light with a separate handheld unit either alongside or below the lens, depending upon the angle. "The light on his face was always soft," the camera notes, "and he was never overexposed."



Kemper has an uncommon talent for creative problem solving. While shooting *Eddie* (*AC* June '96), a sports comedy about a female cabbie (Whoopi Goldberg) who becomes the coach of the New York Knicks, the cinematographer found that the Charlotte, North Carolina, location used as the team's home court was permanently lit with a combination of sodium- and mercury-vapor lamps designed and installed by Musco. "The lamps produced wonderful lighting for basketball games, but they generated tremendous green spikes on film," Kemper recalls. "I could almost see the green tint with my naked eye. I

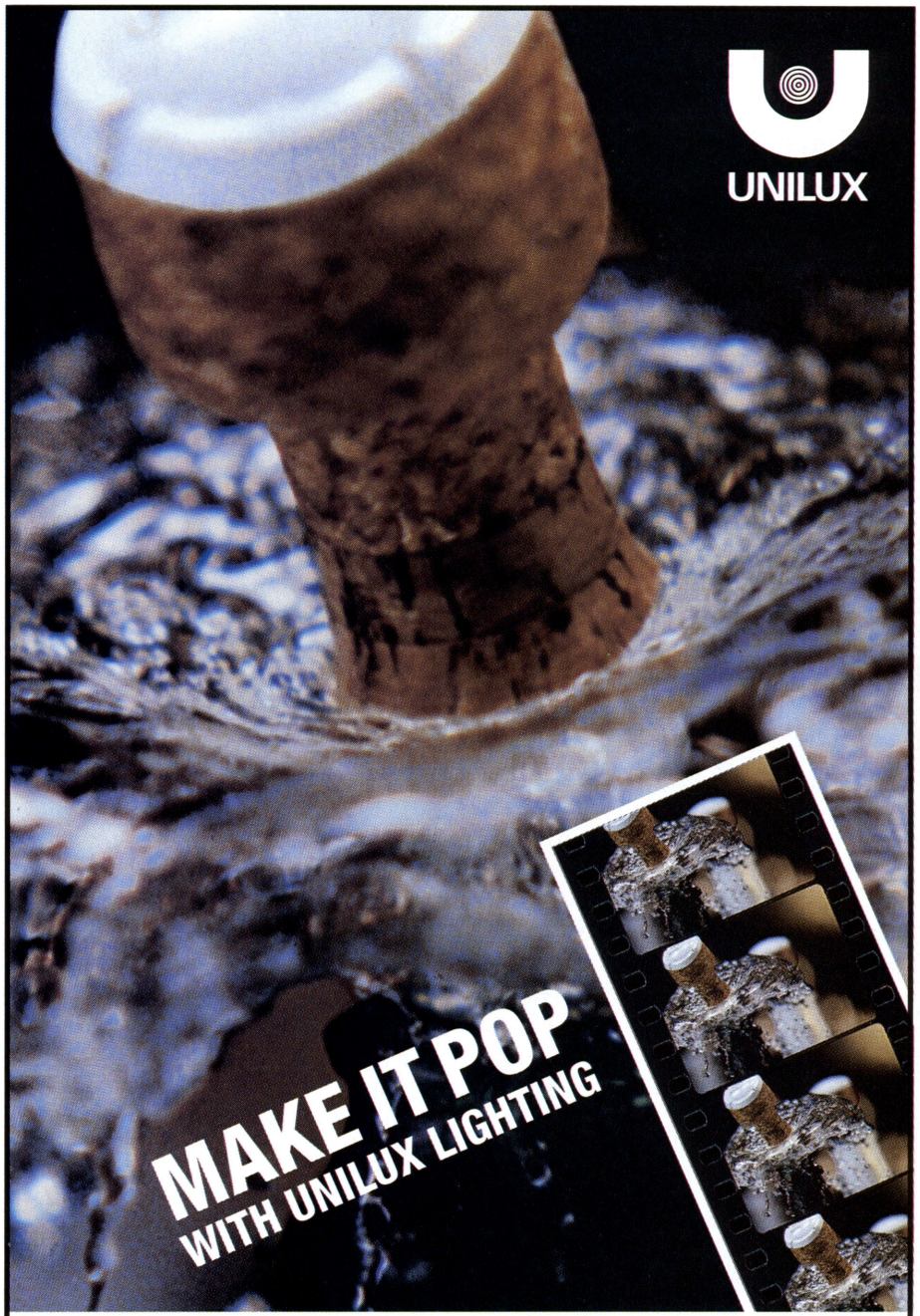
remember thinking that it would take forever to shoot tests and decide how to compensate with color-correction filters."

Of particular concern were the high tiers of stands in shadow areas, where the fans' faces would assume a greenish tint. Many filmmakers might find such a problem to be relatively small, but Kemper felt that even a hint of unreality could jar the audience into remembering they were watching a movie. The cameraman knew it was important for viewers to feel engaged in the sport's excitement.

During this period, Kemper met Mitch Bagdanowicz during a visit to Kodak Research Laboratories in Rochester, New York. Bagdanowicz had been experimenting with a spectral radiometer, an instrument designed to measure every color in the spectrum generated by direct and reflected light sources. Kemper invited him to bring the spectral radiometer to the Charlotte arena and measure each source of light for white, black and neutral skin tones in shadow areas and in pools of light.

Bagdanowicz ran the collected data through a computer that plotted a spectral curve which predicted where the green spikes would occur.

Two days later — far less time than other solutions to the problem would have taken — he recommended to Kemper a combination of lamp and camera lens filters which would compensate for the green spikes. "Victor was at the peak of his career



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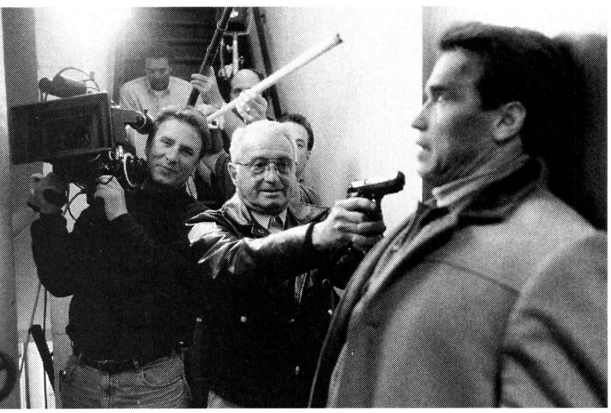
when he visited our research labs," Bagdanowicz recalls. "Most people in his position would have felt they had nothing more to learn, but he wanted to stay on the cutting edge. He was intensely curious about my experiments, and he understood how to apply it in a creative way."



Backed up by operator Jeff Tufano and the rest of his crew, Kemper sets his sights on Arnold Schwarzenegger while filming the Christmas comedy *Jingle All the Way* (1996). The cinematographer and actor had first worked together on the 1976 bodybuilding film *Stay Hungry*.

Kemper made an indelible impression on the ASC when he served as president from 1991 through 1996, the longest consecutive tenure in the organization's 78-year history. In 1993, after the Federal Communications Commission (FCC) announced plans to replace NTSC with a new television system based on digital transmission, Kemper appointed an ad hoc committee to study the proposal's ramifications for both filmmakers and the public. The ASC subsequently became the creative community's first organization to give the FCC recommendations concerning this technology. "Our most important recommendation is that with digital transmission and widescreen TV, you can display all films the way they are meant to be seen, in their original aspect ratios," he emphasizes. "We wanted the FCC to ban panning-and-scanning. We haven't won, but we also haven't lost. The FCC left it up to the marketplace to decide. We aren't giving up. We have a moral responsibility to ourselves, to future generations of cinematographers and to the public."

When asked to name some favorites from his own body of work, Kemper confesses that, like most cinematographers, his first film, *Husbands,* remains his first love. But he adds that since he has shot so many films, a great many of them have special meaning. He singles out *Magic,* a 1979 thriller directed by Richard Attenborough and starring Ann Margaret and Anthony Hopkins. Kemper recalls that Attenborough gave him free reign to construct the lighting, setups and look of the film. "In *Magic,* we had four or five different looks because of the shifting emotions in the story. There was also a lot of night work, and that's always fun."

He also cites *The Last Tycoon,* a period film about Hollywood in the Thirties directed by Elia Kazan in 1976. "That picture was easy to make look good because of the work done by production designer Gene Callahan," says Kemper. But 20 years later, he still regrets not shooting the film in anamorphic: "It deserved to be seen in 'Scope, particularly the opening scenes with the earthquake and the flood that followed."

Dog Day Afternoon, directed by Sidney Lumet, invariably comes up when film aficionados discuss Kemper's work. Critic Pauline Kael characterized it as "one of the best 'New York' films ever made." Kemper muses, "I couldn't have shot it in Hollywood that way. It was counter to everything Hollywood believed in at that time. It wasn't glitzy. Sidney Lumet and the producers told me to make the film look as if it was happening right then in Brooklyn, New York. I just kept going over the script, watching the rehearsals and the sets being constructed. We made some interesting lighting changes during the bank robbery. That was conceived in my head, with no research. I suppose there might have been subliminal mimicking of something I saw before, but I doubt it."

They Might be Giants is also on Kemper's list of personal favorites. It's another "down-and-dirty New York film" made on a hope-and-a-prayer budget, shot entirely on practical locations. Pausing during this remembrance, Kemper maintains, "I still have some stories to tell. You never know what opportunities the next film will bring."

When asked what makes a cinematographer great, Kemper advises, "Part of it is a craft you can learn; for instance, I learned about the elegance of reducing rather than adding light. But there is also something innate which whispers in your ear and tells you to move the camera a foot in a particular direction, or to shield a face partially in shadows. That talent may be there in your heart and soul, but you also have to learn the craft. You have to learn how to work with the director, cast and crew, and you have to be able to do it consistently."

Theorizing about why so few cinematographers achieve celebrity status, he observes, "Great cinematography has to be unobtrusive. It should never call attention to itself. You are there to help the director tell a story. Cinematographers aren't responsible for scripts or the tenor of stories, but if I accept a job I also accept responsibility for realizing what kind of influence it might have on the people who watch it. I made a conscious decision not to work on films which glamorize gratuitous violence or sex. I prefer pictures like *Dog Day Afternoon* or *The Hospital,* which have deep social meaning. I would also enjoy shooting a Western — which I've never done — or an epic story where the audience can really observe the environment."

Looking back on his long career, Kemper says that he wouldn't do anything differently: "If I had another life to live, I would probably do the same things over again." ■

The public is invited to meet the ASC Awards nominees and honorees at the Hollywood Clubhouse at 1782 N. Orange Dr. on March 7 from 10 a.m. to 4 p.m.

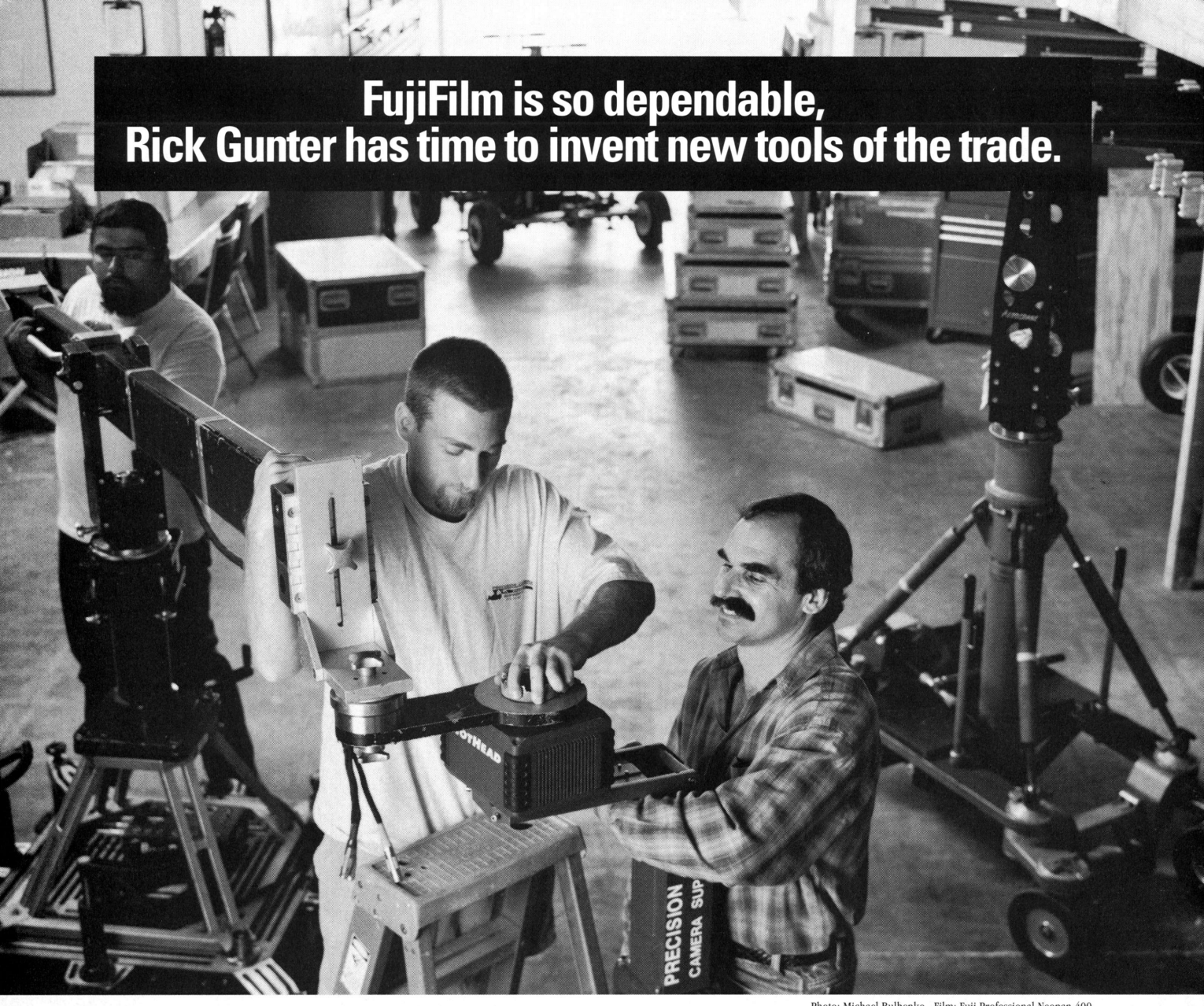


Photo: Michael Bulbenko. Film: Fuji Professional Neopan 400.

Most people like to get away from work now and then. Director of Photography Rick Gunter spends his off-hours outside the "Beverly Hills 90210" set developing new tools for...the set. What started as a hobby for the second-generation DP has become a successful business. Gunter, his son Brian, and key grip partners in Precision Camera Supports, use their knowledge as working pros to dream up more efficient camera supports, car mounts, and grip stands.

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For this DP, that includes FujiFilm. In night shots, by firelight, on a high-contrast beach, "Fuji comes through," Gunter says. "It maintains details and looks wonderful." And because it's so consistent, he doesn't have to waste time worrying about performance. Weekends he can stay home — and draft ideas on how to make things work better.

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Rick Gunter's DP credits on FujiFilm include 90210, Pier 66 and Winnetka Road, all for Aaron Spelling. His other series include Home Fires, Dallas, and St. Elsewhere, on which his father was also the DP.

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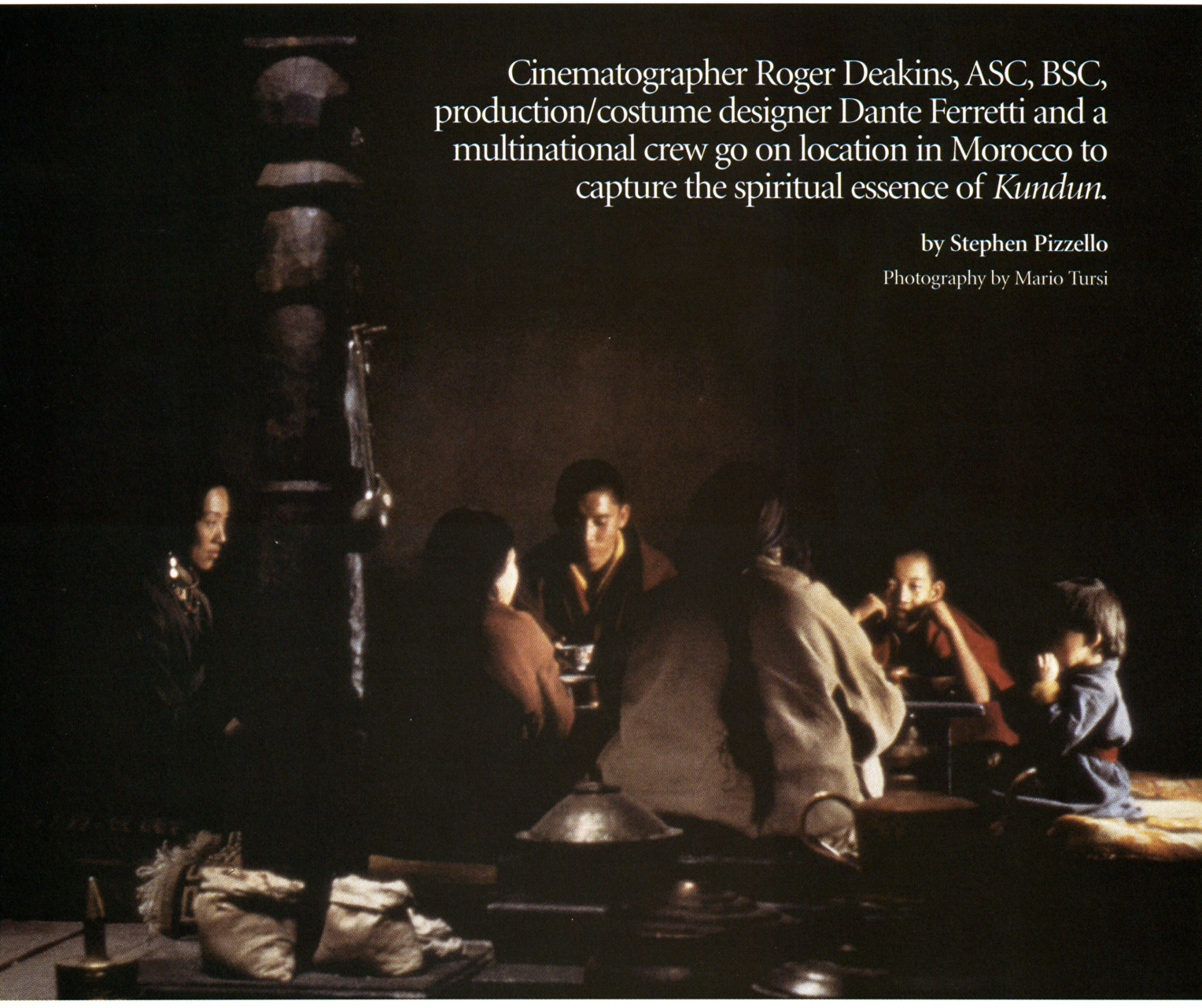
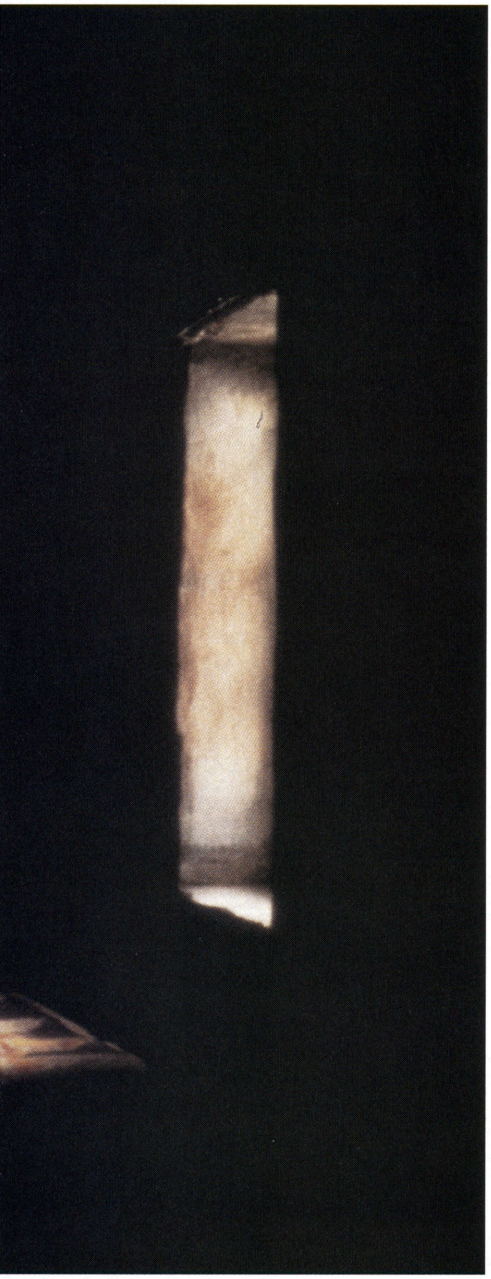


Cinematographer Roger Deakins, ASC, BSC, production/costume designer Dante Ferretti and a multinational crew go on location in Morocco to capture the spiritual essence of *Kundun*.

by Stephen Pizzello

Photography by Mario Tursi

The year is 1959; high up in the frigid reaches of the Himalayan mountains, a bone-weary traveler on horseback slowly approaches an Indian border crossing, surrounded by a small phalanx of fellow riders. As he dismounts, this forlorn figure is stopped by sentries, who quickly realize the significance of the moment: the man standing before them is none other than the Dalai Lama. Expelled from his Tibetan homeland by Chinese invaders, the deposed deity has nowhere else to turn for sanctuary.



Photos courtesy of Touchstone Pictures Company.

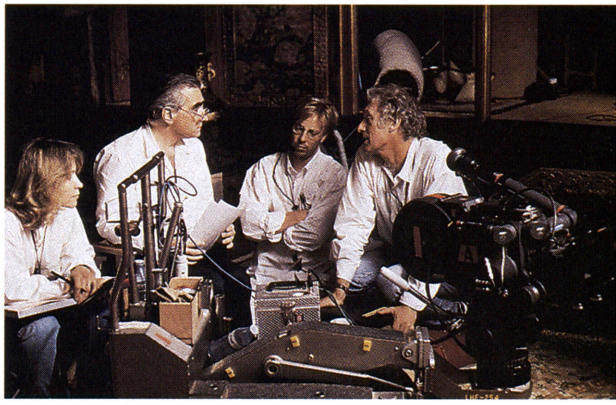
Today, 39 years after his ouster, the Dalai Lama has yet to return to Tibet, which remains a near-mythical realm in the minds of most Westerners. Situated on a high plateau in southwest China, at an average altitude of 16,000 feet, this storied land is known as the cradle of Buddhism, a religion with millions of followers the world over. Since it was forcibly assimilated by the Chinese (who promptly rechristened it Xizang), Tibet has been shrouded in the melancholy aura of a lost civilization. Due to the persistent efforts of its spiritual leader, however, the region has remained alive in the public consciousness as the focus of an enduring political controversy. Thus far, the Chinese government has scorned the Dalai Lama's attempts to rally worldwide support and restore Tibet's independence.

Martin Scorsese's latest film, *Kundun* (a term meaning "Ocean of Wisdom"), traces the life of the Dalai Lama from infancy to adulthood. The tale begins in 1937 at a small farmhouse in rural Tibet, where precocious, two-year-old Tenzin Gyatso has enjoyed an idyllic childhood with his loving family. The clan's peaceful existence is forever changed, however, when a group of Tibetan scholars arrive at their door. Intent on locating the 14th reincarnation of the Buddha, the scholars soon determine, through a series of tests, that Tenzin is the new Dalai Lama. The boy and his dumbfounded family are immediately escorted to Lhasa, where little Tenzin is enthroned as the country's spiritual leader.

While adjusting to his new life, Tenzin is tutored by the best Tibetan scholars; in 1950, during his 15th year, these teachings are put to the test when the Chinese communist army of Chairman Mao Zedong invades the country, claiming it as part of China. The Dalai Lama's attempts to resolve the situation through nonviolent diplomacy fail, and he is forced into exile nine years later, at the youthful age of 24.

In bringing this story of personal struggle to life, Scorsese and his crew faced an array of artistic, technical and logistical difficulties. Determined to lend their intimate film an emotional resonance, the director and producer Barbara De Fina cast the film with native Tibetans, none of whom were professional actors. The part of the Dalai Lama was played by four different boys (aged 2, 5, 12 and 18), and other key roles were assigned to actual members of the Tibetan leader's family. In fact, the Dalai Lama himself served as a consultant on the project, working closely with scriptwriter Melissa Mathison and the filmmakers.

Scorsese's insistence upon picturesque locations presented further challenges. Denied permission to shoot in India, the production headed for Ouarzazate, Morocco. Over the years, this small municipality has developed into a staging post for tourists headed into the Sahara Desert; it also offers a motion picture facility, the Atlas Film Studio, located just 15 minutes from the center of town. But as director of photography Roger Deakins, ASC, BSC notes, the working conditions in Morocco were a far cry from the luxuries of a Hollywood studio. "I went to Morocco for about 10 days with



Opposite: Vermeer-like sidelight warms a scene in which the future Dalai Lama enjoys a family breakfast. Below: Director Martin Scorsese (second from left) confers with (from left) script supervisor James Ellis Deakins, first assistant director Scott Harris and cinematographer Roger Deakins, ASC, BSC.

Raising Tibet in the Desert

B-camera/Steadicam operator Peter Cavaciuti (far left) negotiates within the confines of an authentic set to capture a sequence in which young Tenzin Gyatso (Tenzin Yeshi Paichang, opposite) proves beyond all doubt that he is the reincarnation of the Buddha.

Marty sometime in June of 1996," recalls Deakins. "It was a bit of a scramble to find the locations we needed. We saw some locations we knew we weren't going to use, and we also saw the Atlas Film Studio, which was built years ago when a James Bond picture shot there. The studio 'entrance' consisted of a mud wall with this door in the middle, and when you went through, there was one small 'stage' — really just a warehouse — surrounded by an expanse of desert. It was really surreal."

The rough working conditions did little to deter Deakins, who has earned the admiration of both critics and his peers with outstanding work on such features as *The Shawshank Redemption* (which earned him both an ASC Award and an Academy Award nomination — see *AC* June 1995), *1984, Courage Under Fire* and *Dead Man Walking.* The cinematographer is probably best known for his collaborations with the Coen brothers: the ASC- and Academy-nominated *Fargo* (*AC* Mar. '96), as well as *The Hudsucker Proxy* (*AC* April '94), *Barton Fink* and the upcoming feature *The Big Lebowski.* However, it was his impressive photography on the scenic dramas *Pascali's Island* and *Mountains of the Moon* (see Scorsese interview on page 52) which actually caught the director's eye.

To ease his burden a bit, Deakins brought some of his key crew members from the United States: gaffer Billy O'Leary, dolly grip Bruce Hamme and camera assistant Andy Harris. "The key grip, Tommaso Mele, came from Italy, and he was wonderful," Deakins enthuses. "The rest of the grip crew was also Italian, as were the balance of the electricians. They were all really helpful. We also had a great English operator named Peter Cavaciuti, who handled the B-camera and Steadicam work."

The cinematographer says that careful planning and his detailed discussions with Scorsese helped prepare him for the arduous nature of the show. "Marty had the script very clearly in his mind, and he had a very definite concept about how he wanted the film to feel. Even before going to the location during prep, he had broken down each scene into a specific style. If he wanted a particular scene to be a long, moving camera shot on dialogue, he would have that down, maybe along with a couple of close-ups he wanted to use to heighten specific parts of the sequence. On another scene, he might have things broken down into a much more conventional series of close-ups on dialogue. He did this even before locking down the locations or actually seeing the final sets!

"Those sketches were what we primarily worked from," he continues. "The day before we shot a scene, we might have a brief conversation about the next day's work, but we basically worked from his initial conception. Of course, sometimes, given the practical realities of a set or location, we couldn't achieve the precise shots that Marty wanted; if I saw that something wasn't going to happen the way we'd planned it, I'd talk to Marty and we'd come up with an alternative.

"I don't know if that's the way he's worked before, but for me it was great," he maintains. "Generally, I was surprised at how often I was left to my own devices in terms of lighting the shots and choosing a lens. After seeing the sets and locations, I would take Marty's script notes and transform them into little diagrams showing where the camera would be for each shot, which order to shoot things in, and so on. Overall, I felt as if I had a lot of input; Marty gave me quite a bit of his trust, and I did the best I could to get what he really wanted."

The cinematographer says that his earliest strategy sessions with Scorsese revolved around their use of the Super 35 format for widescreen compositions. "I shot *Air America* in Super 35, so I was familiar with it," he notes. "I feel that there are good and bad aspects to the format. Technically, it's pretty good these days, though there is a definite loss of color intensity because the whole Super 35 process involves an optical. On balance, though, I think Super 35 was

the best way to go on this film; the slightly less saturated colors actually add to the naturalism we sought. Most of the interiors take place at night, and our only practical sources in those scenes were butter lamps — little wicks in bowls of butter fat. In general, I like to make a light source look as if it's really working, instead of overpowering it with an artificial source. I do use gag lights, but I like the sources themselves to be very bright within the scene. In this particular respect, the Super 35 format has the advantage over anamorphic, because it allows you to use faster spherical lenses."

Deakins opted to shoot most of *Kundun* with Zeiss Superspeed and standard-speed lenses. For closer shots, his favored lenses were the 40mm and 50mm — in keeping with the cinematographer's oft-stated preference for focal lengths which simulate a human eye's actual field of view. "A lot of times, though, I put on a wider lens than Marty had imagined," he admits. "We were occasionally shooting with a 14mm to see the scale of some of our sets — often because we couldn't float the walls. Even if we could, the 'stage' wall might only be a few feet behind the set wall."

"I think this film is very much a poem rather than a traditional narrative film. It's more of a mood piece involving a specific time and place in history, so our main challenge was to capture that."
— Roger Deakins, ASC, BSC

The production did carry a Cooke 18-100mm zoom lens, but it was used sparingly. "I like using prime lenses because it forces you to move the camera and think about where the camera needs to be," he maintains. "That's the way Joel and Ethan Coen work, and Marty is very much the same way. We really only needed the zoom for this one specific shot that we did, which occurs within a dream sequence that we'd talked about well in advance of the shoot. The camera starts in really close on the Dalai Lama's eyes, and then pulls back and tilts down to reveal him standing amid this array of dead monks in red robes. The camera then begins rising straight up until he's back in frame at full figure, surrounded by this sea of bodies. There was no way of tracking with the 75' Akela crane we used, so in order to get the size we wanted on the Dalai Lama's face at the begin-

Raising Tibet in the Desert

A PowerPod remote head on an Aerocrane jib arm (top) was used to execute shots of a ceremony during which the young Dalai Lama makes his first appearance before the people of Tibet (bottom).

ning, and still have a move with a fluid feeling, we used the zoom to widen out at the end of the move. As the camera neared 50' and rising, the perspective shift on the wide end of the lens became very slight; this allowed the effects people at Dream Quest Images to continue the move even further while adding extra bodies to fill the outer edges of the frame."

Hewing to his desire to let real sources do as much work as possible, Deakins shot most of the film at an aperture of T2.2 or 2.5. "If you shoot at 5.6, the candles aren't going to do anything," he says. "We had some big night exteriors where I would have dearly loved a deeper stop, but using all of the HMI lights at my disposal, I could only manage a stop of 2.4 and still keep a thick negative. I always try for a thick negative because I don't like to lose richness in the blacks. I always overexpose a little, and I'm usually printing in the mid-40s.

"During day interiors, I was probably lighting to a 2.8 or even 3.2, and when high-speed work was involved in a scene, I would light the whole scene higher in order to make the matching easier. On exteriors, it really depended upon the kind of depth of field we wanted. In those types of situations, I like to have good depth, because to me that seems to be the more natural way of seeing things. I tended to use a .3 neutral-density filter and shoot at about 8 or 11 for bright exteriors."

The cinematographer exploited Eastman Kodak's Vision 500T 5279 stock for all of his interior and exterior night work; he switched to EXR 5293 for day interiors or dusky exteriors, and EXR 5248 for day exteriors. "The 79 is terrific, because it's so fast; it really is 500 ASA. I began rating the 79 at 400, but I found I could really rate it at 500 and not worry about losing the blacks."

Deakins notes that *Kundun* relies heavily upon its atmospheric staging and locations. "I think this film is very much a poem rather than a traditional narrative film," he opines. "It's more of a mood piece involving a specific time and place in history, so our main challenge was to capture that. Morocco is not at the same altitude as the spot we'd initial-

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ly chosen in northern India, and the mountains aren't quite as present; it's also much more arid, which was kind of nice. The Tibetans were constantly saying how much it reminded them of their homeland, and they got a bit tearful at times, which was a pretty good gauge of our location's appropriateness."

Of course, Deakins wasn't alone in his quest to transform Morocco into Tibet; also joining the caravan was expert production designer Dante Ferretti, who did double duty as the film's costume designer. Over the course of his long and illustrious career, Ferretti has earned four Academy Award nominations (*Interview With the Vampire, Hamlet, The Adventures of Baron Munchausen* and Scorsese's *The Age of Innocence*). His impressive list of credits also includes another successful collaboration with Scorsese (*Casino*), as well as five films with Federico Fellini (*The Voice of the Moon, Ginger and Fred, And the Ship Sails On, City of Women* and *Prova d'Orchestra*) and a half-dozen pictures with Pier Paolo Pasolini (*120 Days of Sodom, Arabian Nights, The Canterbury Tales, Oedipus Rex, Decameron and Medea*).

The five-year-old Dalai Lama (Tulku Jamyang Kunga Tenzin) is comforted by his mother (Tencho Gyalpo). Nearly all of the film's key roles were played by nonprofessional Tibetan actors.

Once the production had selected the town of Ouarzazate as its primary location, Ferretti supervised the construction of a second, larger soundstage at the Atlas Film Studio. "It was really just another warehouse," the production designer admits, "but we did all of our interiors there: the Potala Palace, where the Dalai Lama spent his winters; Norbulingka Palace, also known as the 'summer palace'; Dungkhar Monastery, the Throne Room, and so on. The stage we built was 300' by 200', and about 50' high. We also built a passageway to connect it to the smaller existing 'stage.'"

"This is the kind of movie where you have to believe that you are actually in Tibet, so we built everything to be as real as possible. We used real flagstones for the floors of the sets, and I went to a factory in India to get the types of brocade, silk and fabric normally bought by Tibetan people."

— Production/costume designer Dante Ferretti

Ferretti and his multinational team ("We had Italians, Moroccans, English and Americans in key crew positions") redressed an existing street to resemble the Tibetan capital of Lhasa, using the concrete shells of unfinished houses as facades for their exteriors. The production also hired hundreds of Moroccans to help fashion the entrance to Norbulingka Palace and its walled gardens, which were built on the shore of a large reservoir located 40 minutes from Ouarzazate. Later scenes set within Mao Zedong's Peking headquarters were shot at an existing building in Casablanca, while a field study center in the High Atlas Mountains, some 90 minutes from Marrakech, was converted into the exterior of the Dungkhar Monastery.

Ferretti concedes that his budget was not lavish; accordingly, he spent funds judiciously while still striving for sumptuous sets and costumes. "I did have a very low budget, but Morocco is not a very expensive place," says the designer, who first worked there 30 years ago on Pasolini's *Oedipus Rex*. "This is the kind of movie where the audience has to believe that they are actually in Tibet, so we built everything to be as real as possible. We used real flagstones for the floors of the sets, and I went to a factory in India to get the types of brocade, silk and fabric normally bought by Tibetan people. To do the construction, we hired a lot of Moroccan carpenters, plasterers and sculptors who did everything the old-fashioned way. Sometimes we had as many as 300 people working at once, but we could afford it because their fees were very low. There would have been no way to do it otherwise, because we had to build the big sets in about 14 weeks."

"Absolute authenticity" was Ferretti's ultimate goal. "I read a lot of books in preparation, and I had very good technical advisors. Namgyal Takla, the widow of the Dalai Lama's brother, helped with the costume research, and I even had some meetings with the Dalai Lama himself; he

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did some sketches and floor plans for me. I didn't want to make any compromises, and Roger did a good job of shooting and setting up his lights so that we could keep everything authentic."

Confronting his adult responsibilities as Tibet's political leader, the Dalai Lama (Tenzin Thuthob Tsarong) departs a meeting with China's Chairman Mao Zedong.

Deakins admits that the meticulous accuracy of Ferretti's approach came with a price. "Because of the relatively low budget, it was difficult to have optimal setups," he says. "With the sets built in warehouses that passed for stages, there were no rigs, no gantries, and no greenbeds up in the ceiling. The roof just wouldn't support any real weight. I have to say, those sets were the most difficult I've ever dealt with, because of the situation we created. Dante really didn't have the money to construct the sets the way I needed — to build roofs that I could work on, platforms I could light from, or structures to which I could rig lighting fixtures. The sets were built as inexpensively as they could be and still look good, but they weren't specifically structured to accommodate a director of photography. I sympathized with Dante, because he just didn't have the money to do it.

"When I got there toward the end of prep, I had the crew strengthen the ceiling in certain places, and put in trusses or wooden beams where I needed to place lights. I didn't see any alternative; we couldn't light those scenes from the floor."

The cinematographer says that the *Kundun* shoot required a very large lighting package. He initially planned to leapfrog his lights from one set to another, but modified this strategy to accommodate a schedule which to some extent reflected the chronology of the script. This meant that the composite Potala set stood for a large part of the schedule, while the appropriate lighting fixtures remained rigged and ready for shooting. Deakins explains, "I didn't want to be fussing with the lights while the actors were there preparing for a scene. On most of the sets, there were only minimal lighting changes from shot to shot, because I pre-lit the sets using the platforms that had been prepped beforehand.

"I did have a large lighting package, but it wasn't because I needed a lot of units on any particular set — in many cases, I simply couldn't de-rig one array of lights and get it onto the next set in time to shoot."

Deakins felt that it would be better and more cost-effective to use tungsten sources on the sets, while maintaining a separate HMI kit for exterior work, night work and the few location interiors. He ordered his basic package from Cartocci in Rome, and made sure to schedule in the two-week delivery time to Ouarzazate. "I wanted to have the equipment in Morocco two weeks before we started shooting so we could do our pre-lights," he notes. "Working off of Dante's plans, I came up with an overall lighting package, and I added some extra gear to cover any problems, which I knew we'd encounter at some point."

The complete lighting package for the Atlas Film Studio stage work included approximately 58 Maxi-Brutes, 32 blondes, 24 10Ks and two 20Ks. "It was probably even more," Deakins hedges, "and that was just for the stages. We mounted 20 of the Maxis on the wall of our Potala courtyard set, and they stayed there for 10 weeks. We also had to have two generators. I couldn't have gone much further with the lighting package, because I wouldn't have had the generating capacity. At one point, we had everything burning, and both of the generators were in trouble! It was right on the edge of what they could handle, and I was still only shooting at T2.5."

Depending on the scene at hand, Deakins altered his lighting approach for stagebound setups to reflect the appropriate dramatic tone. "The first time we see the Tibetan assembly room is during a sequence in which the young Dalai Lama is walking around the monastery and checking things out," he relates. "He hears these voices from the assembly room, and when he looks in he sees all of these older men discussing the fate of Tibet in this huge, amazing room. I wanted

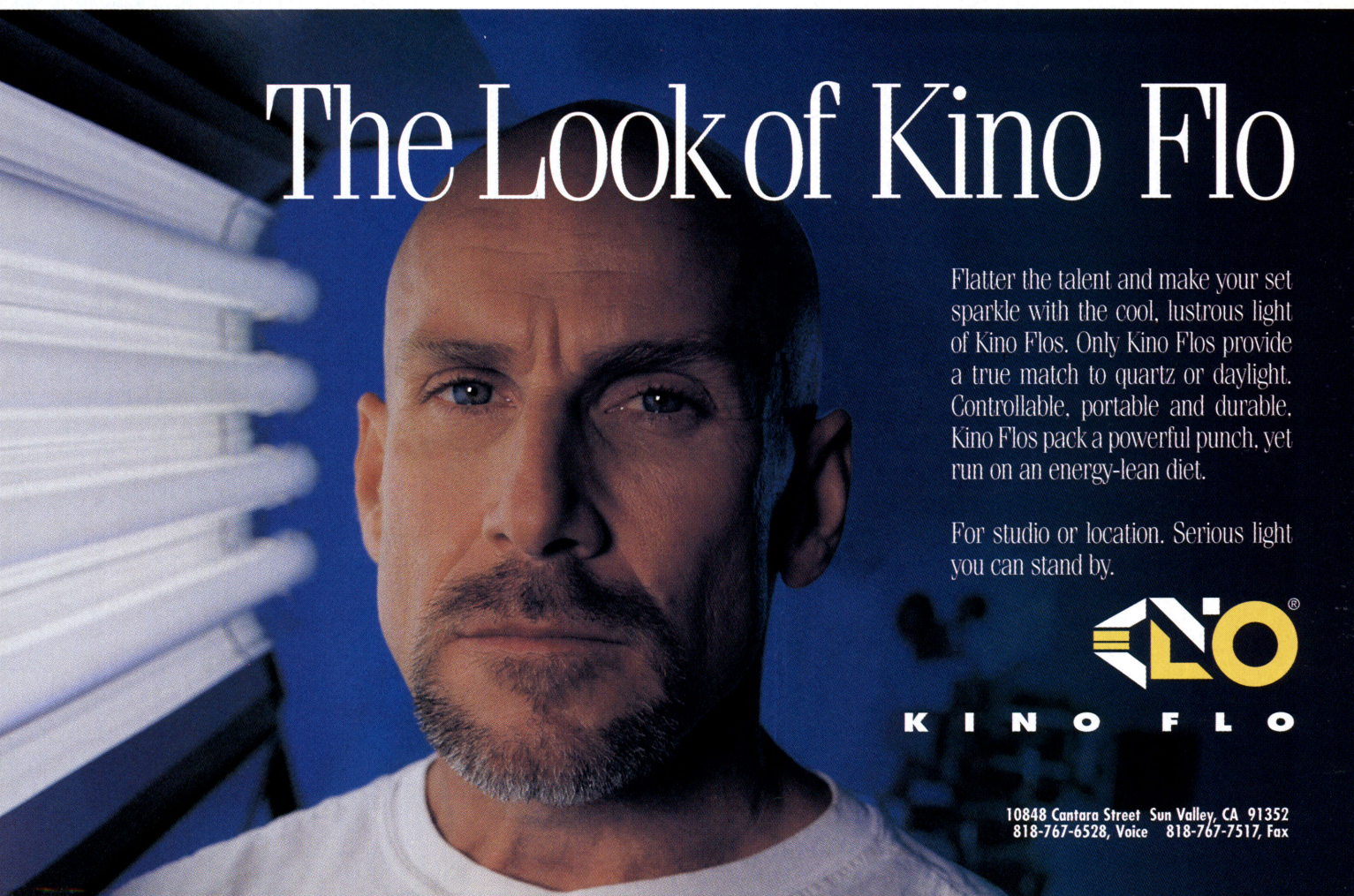
our first view of the room to be really gray and kind of mysterious, so we used a soft, cool toplight; to get a soft wrap, I installed wide-flood bulbs in a number of Maxi-Brutes. We then bounced these lights off large Griffolyns which we tied to the roof rafters of the 'stage.' This light was then softened and cut as it entered the ceiling of the set itself, only 10' below. It was all a bit of a struggle; I must have lit that particular scene five times before achieving something that I was happy with.

"For a later scene in which the Dalai Lama is meeting with a Chinese general in a French-European-style living room, I wanted more of a low, direct sunlight look. I was basically using the same units, Maxi-Brutes, but I switched to narrow-beam spot bulbs to obtain a harsher look. A light brushed-silk diffusion erased the multi-shadow problem caused by the bulb array. If I was using a Maxi for a different kind of situation — bouncing light off a Griffolyn or something — I would occasionally install medium-flood bulbs."

"Working on this show reminded me of some of the documentaries I've worked on. It was a bit like camping: we just had to make sure we took everything we were going to need!"
— Roger Deakins, ASC, BSC

The scarcity of state-of-the-art equipment made the film's larger night shoots a bit problematic — particularly a key sequence in which the disguised Dalai Lama leaves his palace for the last time and wends his way through a throng of people beyond the gates of an ornamental garden. "There are no lifts or Condors in Morocco, and you can't have a Musco light with the type of budget we had," Deakins submits. "The only way to do that shot was to build a 60' tower rig, partly out of scaffolding we managed to find in Casablanca. All of that material had to be brought 400 miles from the coast to Ouarzazate. It took the crew two weeks to build the rig; there was no way it was going to move once it was up, so we basically had to light this entire series of shots with one high source.

"We built the tower in a very specific spot so it would be hidden behind the garden wall when the camera panned, tracked and craned around. I think we had six 12K HMIs up there to create a blue 'moonlight' effect. Those were not corrected at



Cutting Kundun

by Sallie Seltzer

Veteran editor Thelma Schoonmaker has now worked with director Martin Scorsese on nearly a dozen feature films, earning an Academy Award for her work on *Raging Bull* and an Oscar nomination for *GoodFellas.* Scorsese's latest effort, *Kundun,* marked a departure for the pair of long-time collaborators, and Schoonmaker recently answered some questions about her work on the picture.

What was different for you about this film?

Thelma Schoonmaker: *Kundun* is sort of a visual poem. It's very different from Marty's other films, which are character-driven and dialogue-driven. This film is made up of poetic moments which had to be created with a combination of beautiful imagery, great set direction and proper placement of the music. Large sections of the film works on that level alone, without dialogue, and that was a first for us.

Was there more structure in the coverage, or did the extensive use of nonprofessional actors lend itself to a more documentary style?

Schoonmaker: They had to shoot the two-year-old Dalai Lama [Tenzin Yeshi Paichang] almost in a documentary way. He was not used to being in front of a camera for a long period of time; he would just walk out of frame and maybe come back and cry a lot, but he was great on camera. It was my job to take that footage and find a way to make it work within the scene. We had a very good little boy who was bit older but the same size, and he would double for the two-year-old.

Did Scorsese do any improvisation this time around?

Schoonmaker: No, none. The first thing I noticed when I started looking at the dailies, though, was how absolutely believable these Tibetans were. It is really their story, and they were just remarkable the way they behaved around the *God King.* Their body language and their devotion didn't have to be acted.

You were in New York while the shooting was going on in Morocco. How did this work out? Was it the same routine for *The Last Temptation of Christ?*

Schoonmaker: Actually, we used some of the same locations in *Last Temptation.* It's very disappointing for me that I never get to go, but when Marty and the crew are at these arduous locations, they're terrified if they have to wait eight days to see the dailies. I had to be here to see the film coming out of the lab. They could only ship once every four days; the footage had to wait in customs for bomb security and other reasons, because it was coming out of that part of the world. It took eight days for the footage to get here and then be developed, printed and sent back there. If there was a camera problem or something else, I could alert them right away. Fortunately, we had no [technical] problems.

In some ways it's good [that I wasn't on location,] because it helps my perspective and Marty sometimes needs to rely on that when he's so far away.

Were you cutting on film?

Schoonmaker: No, on Lightworks. But we always conform and screen. You have to memorize those images on the screen because when they are compressed into your digital editing machine, they don't have that beauty any more. I always try to keep a memory in my mind of what the footage looked like on the screen when I'm working on the digital image.

What kind of a schedule did you have on this picture?

Schoonmaker: Well, because Marty participates a lot in the editing, our schedules are always a bit longer, but this one was quite monumental because we had 90 minutes of music — an original Philip Glass score which required enormous amounts of time to mix. I did scratch mixes in Lightworks for *Casino* all the time, and it would take two or three days. The first time I did this film, it took 10 days! Because of its poetic nature, the music became much more important. We also had an extensive amount of ADR, which we normally do not have, because we needed to clarify certain words. The actors were speaking English, but they had Tibetan accents.

You had the music ahead of time?

Schoonmaker: Yes, we had it all on synthesizer — a full 90-minute score during the entire edit. That was wonderful, but it was quite arduous to constantly be carrying, editing down and mixing. This film required it, though.

Was the idea that the film would be a 'visual poem' also decided far in advance?

Schoonmaker: Yes, very much so. Marty always has an overall concept of the film before he starts shooting, or else he wouldn't shoot. That's one of the reasons he's such a good director: he thinks things out very carefully in advance. He has a certain idea not so much of the structure of the film, but of the style — the camerawork, the editing. Everything is very much in his mind from the beginning; that's why his footage is so well-shaped and focused. It's very helpful for an editor to have a director thinking like that.

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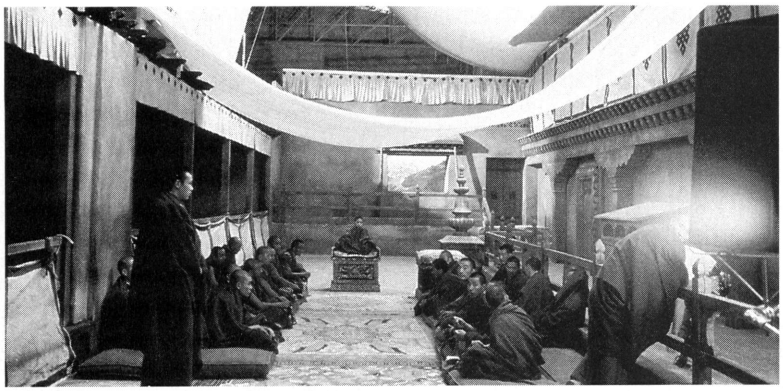

An oracle (Jampa Lungtok) divines a tumultuous future for Tibet.

all, as I was going for a more colorful look than I normally would at night. We also placed some little oil lamps —actually 1K bulbs on dimmers — beneath the archway to add some contrasting color to the shots as the Dalai Lama and his companions went through the gate.

"We had an original HMI package of four 12K and four 6K Pars, but for the night shoots we had to bring in two extra lamps from Rome and a couple more 12Ks from this little commercial company in Casablanca. After we finished each night, we had a day crew move everything — lights, generators and cables — to the next location so that we could maximize our shooting time."

Smaller tower rigs were used for a subsequent nighttime sequence in which the Dalai Lama departs from Lhasa in a small boat. "We were shooting on an open lake, but it was meant to be a broad river in the story, so I tried to find a spot where I could have the feeling of a far bank. We found a place where the landscape curved so I could have a headland, about three-quarters of a mile distant, in the back of the shot.

"I was under some restrictions lighting-wise, because we were shooting on a dirt path by a lake; I didn't have a crane, and we couldn't build any large towers down there. Besides, all of the scaffolding we could find in Morocco was already in use at the palace location. When I first thought about lighting that scene, I was going to put all of my lights on a hill and just have a big wash. But then I thought, 'That's going to be one hard source, and I'm still going to have to fill faces as I move the camera.' There were quite a lot of moving shots, and a lot of shots to do [in general], so we didn't really have the time to mess about. I lit the background with Par lights aimed from the top of a hill, which gave us this gray wash on the far hill-

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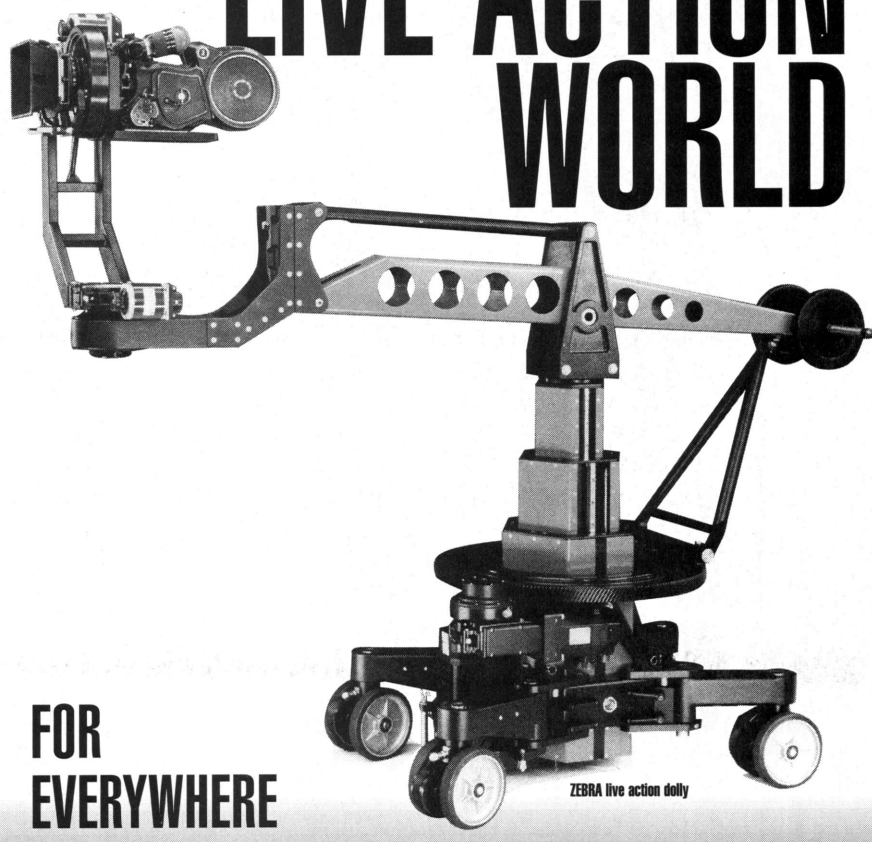

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Honoring the Ceremony of the "Sand Mandala"

The main body of Phil Marco's directorial and visual-effects work has involved the creation of compelling, highly acclaimed images for the national and international commercial television industry. He has worked with Martin Scorsese on a number of films, including *The Color of Money,* for which he provided striking angles of trick pool shots and other extreme close-ups. On *Kundun,* Marco served as director of photography and visual effects on a variety of shots, including those of a traditional Tibetan ceremony involving a sand painting in the shape of a *mandala,* the Buddhist symbol for the universe. Marco herewith offers a firsthand account of his work on these mesmerizing images:

"Early in January of 1996, I received a call from Marty and we met to discuss the filming of certain segments of *Kundun.* One of Marty's ideas was to film a sand mandala in some of the opening scenes in such a way that it would, at times, almost appear to be animation. Although I filmed a number of additional scenes other than the mandala, my primary function on *Kundun* was to beautifully film and infuse visual excitement into every aspect of the sand-painting ceremony.

"In order to achieve the extremely close-up, velvety smooth moves over the sand mandala, I utilized one of our motion-control camera systems at very slow frame rates which varied from two to six frames per second for most of the passes. This totally eliminated any possibility of chatter or vibration in the system itself. Using modified close-focus graphic arts lenses and bellows combinations, I was able to achieve the desired degree of optical proximity to the sand. The fact that we were so close to the subject at times rendered the anti-reflection coating on the front lens element ineffectual, and we began to have small light flares emanating from the uncoated rear lens elements. After additional tests and experimentation, we found that we could eliminate the problem by setting the correct axis on a polarizing gelatin filter and carefully affixing it behind the rear element of the lens.

"For some of the extreme close-ups, lighting the sand painting with the lens about1 1/2 to 2 inches away from its surface became somewhat of a challenge. I found it necessary to design and custom-build a small fiber-optic lightbank that would travel low to the surface in tandem with the motion-control camera. A piece of opal diffusion, with a CC filter fitted over the top of the mini lightbank, produced a sumptuously soft wash of light, yet remained directional enough to maintain drama, and create some specular highlights off the sand.

"To further reinforce Marty's vision of the mandala as animation, I set up two additional cameras to film the sand painting slowly being built in time-lapse. One stationary camera was placed directly overhead to capture the geometric simplicity of the spherical mandala as it evolved from inception to completion. After numerous tests and experimentation, I arrived at a shutter speed and aperture combination that, with some manipulation in post, imbued the six monks in the shots with a very ethereal, spirit-like quality as they moved about to create the painting.

"Filming in time-lapse over such a long period of time necessitated the building of an extremely sound and implacable foundation to protect the sand painting from the slightest movement, as well as the slow, erosive effects of gravity. In order to secure total stability, I had a 7' by 7' 3,000-pound platform built of wood, rubber and steel anchored into my New York studio's concrete and bedrock floor. This platform allowed the monks to move about freely as they created their extremely delicate and fragile sand painting.

"In addition to the stationary camera overhead, a second camera on a motion-control track was programmed to move in increments of a fraction of an inch over the period of seven days that the monks required to complete the mandala.

"The simple act of a fly landing on the mandala would have completely destroyed its extremely intricate landscape. This prompted us to make a special cover that would be faithfully put over the Mandala every night to protect it from flies and other curious creatures.

"At the end of the ceremony, after the monks had labored for seven days to build the sand painting literally grain by grain, this magnificent work of art was deliberately destroyed to graphically symbolize the fleeting impermanence of life. The Dalai Lama initiates its destruction by running his hand through the center of the mandala. To maximize the emotional drama of this momentous act, I had the monks create a number of sand paintings replicating a small section of the mandala's center on separate pieces of background. I then instructed Lobsang Samten, a monk who was extremely helpful in supervising the making of all the sand paintings, and who also played a principal role in the film, to move his hand through the sand as fast as possible on cue. Sidelit with 10,000 watts of semi-diffuse light for exposure, the combination of the powerful forward thrust and camera speed of more than 1,000 fps gave his hand all the force and impact of a Typhoon-class submarine beaching on the sand.

"In order to capture and isolate the minute particles of sand as

they fell away from the slender steel funnel-like instruments (or *chakpu*) which the monks used to create the sand painting, we interfaced an extremely potent electronic strobe light of our own design with high-speed filming. I approached most of the brush-away scenes in the same way.

"We later filmed another shot which was intercut with a scene that Roger Deakins filmed on location near Morocco. In Roger's shot, the Dalai Lama and his entourage are at the edge of a river, where they perform a ceremony to return the remains of the sand mandala back to the river, as tradition dictates. As the Dalai Lama begins to pour the sand out of the container into the river, we cut to a POV from beneath the water, which was filmed on our production stage in Manhattan. We fabricated a large Plexiglas tank with a built-in housing dome for the underwater camera. A 10' by 12' color print made from one of our archival sky negatives made a wonderful match for the location sky, and was secured above the set. One side of the tank below the water was fitted with insulated 12-volt muffin fans to mimic a gentle river current undulating the grains of sand as they cascaded through the water and toward the lens.

"All of us found working and living in the presence of the mandala — and the gentle, loving monks who created it — to be a truly awesome spiritual experience. A short time ago, the thought of even getting a glimpse of the Kalachakra Mandala would have been unheard of, as this ceremony was primarily performed by the monks in the seclusion of their monasteries in Tibet. Now, it will be viewed by an audience of millions, and hopefully captured on film in a way that will inspire and do justice to this magnificent, holy spectacle."

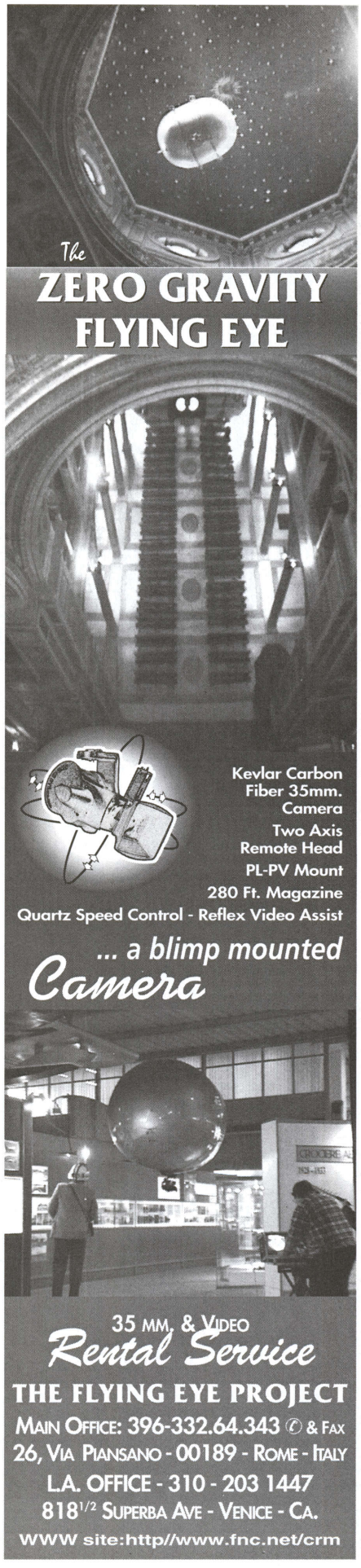
— Phil Marco

side. To light the characters in the boats and on this nearby jetty, I came up with an idea. There was one area of beach that I didn't have to have in the frame, so I put up four little 10' towers, each with an 8' by 8' reflector on top. Each tower had a 12K or a 6K HMI Par underneath it. Depending on where the camera was, I could line these reflectors up quite quickly to give a somewhat soft directional source. I was shooting wide open at about T2.1 with one of the slower, 32mm Zeiss lenses. It actually worked very well. Of course, if it had been windy I think I'd have been screwed!"

Deakins notes that the scene was later enhanced by digital artists at Dream Quest Images, who added mountains in the background and stars in the sky. "I looked at some of the test composites, and they were pretty good," he says. "The trick was to match the lighting of the background plate to my lighting in the foreground. Trouble was, I couldn't light the foreground with the same quality of light that could be created with the freedom of the computer. The computer-generated background looked softer and better than my foreground, and the difference between the two was a give-away. To even it out, they had to make the lighting in the background a little more directional and from the side, rather than the beautiful soft moonlight that they started off with.

"There was no way we could have lent that scene a feel of the distant mountains before this sort of technology came along," he maintains. "We could have done a static bluescreen-type shot, but we'd have been very restricted. Digital technology has really freed us up; my only regret at this time is that we were unable to adjust all of the shots within that scene."

Thankfully, the film's daylight exteriors proved to be a bit less labor-intensive. "We basically shot



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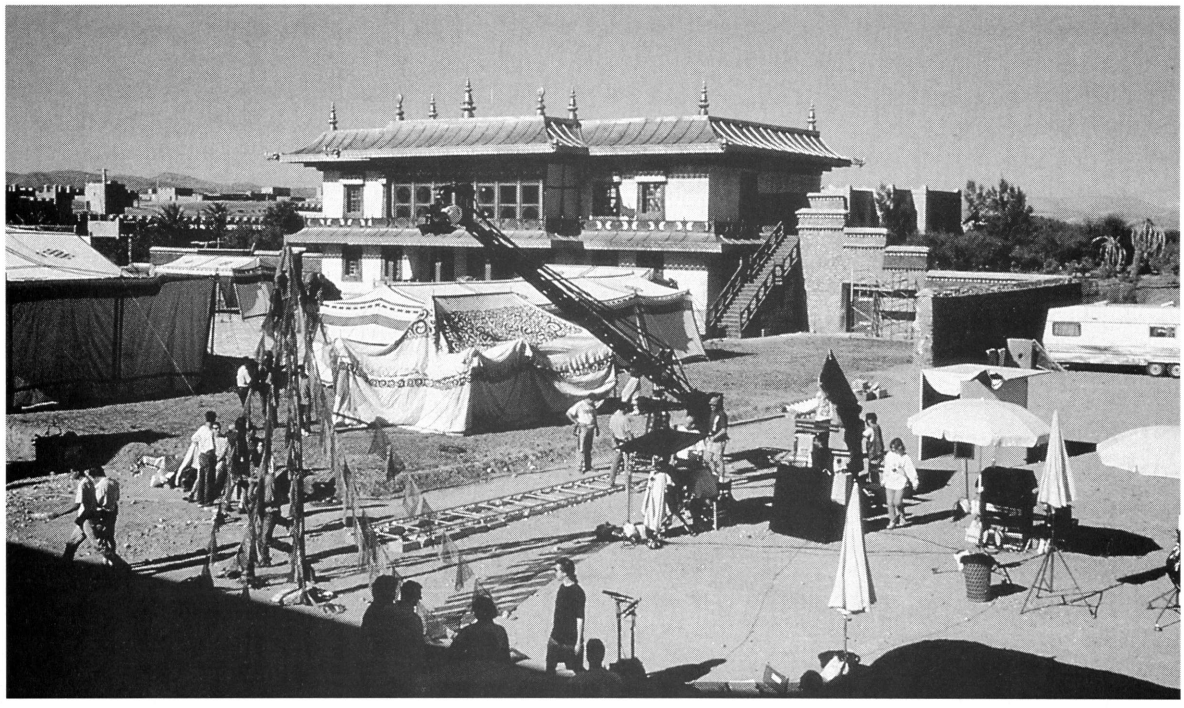

A remote arm is deployed near a Potala Palace exterior at the Atlas Film Studio in Ouarzazate, Morocco.

with very hot light," Deakins says. "I suppose we made an advantage of the fact that we were shooting in midday sun; every day was hot and bright. We really didn't shoot anything in the morning or evening; I think low, golden sunlight tends to be a bit overused. We used the bright exterior light as a nice contrast to the interiors of these monasteries, which are naturally very dark."

Because Morocco's altitude is not as high as Tibet's, Deakins found himself dealing with the country's dustier atmosphere on exterior shots. "I tried to get rid of that with Pola screens, and I didn't filter anything because I wanted to keep everything as sharp as possible. There isn't a single diffused shot in the film; I did use the odd grad, but not too much."

Deakins did make frequent use of gels on his lights, however. His use of color is illustrated by a scene in which the Dalai Lama moves through a snowswept passageway and enters the Throne Room, which was decorated with a huge golden statue of the Buddha and cylindrical cloth tapestries known as *thangas*. Within this majestic space, the young boy is officially enthroned.

The passageway in question underwent several changes during the course of production. In addition to serving as the entrance to the Throne Room, it also doubled as a corridor in both the Potala Palace and Dungkhar Monastery. The passage was open to the elements on each side, and also featured three skylights along its 70' length — one large opening, and two smaller versions. "If I had been in a studio, I probably would have put a big white bounce cove above the skylight and bounced the light from outside the set walls," Deakins says. "There was no way I could do that on this show, because there was no place for me to rig that kind of setup. I talked about that with the key grip, Tommaso Mele, but it would have involved rigging up this huge construction, and the wind probably would have blown the whole thing down. There were 20 miles of flat desert on either side of our corridor, and every afternoon at three o'clock, 50 mile-an-hour winds would come howling across the desert, blow our lighting frames away, completely trash my rigs and fill the whole corridor with dust! In the end, we erected a more modest grid above the skylights — a wooden truss surrounded by some piping. The only way to get the look we wanted was to hang Maxis above the skylights. We had six Maxis over the biggest skylight and two over each of the smaller openings. The Maxis generally had 1/2 CTB on them, and the mixture of this light and the natural daylight that percolated through these openings was further softened and corrected by two layers of 250 diffusion and 1/2 CTO gel.

"For the scene in question, however, I wanted the passageway and the Throne Room to offer sharply contrasting color temperatures. We had a snow effect coming from overhead in the passageway, and the floor was covered with piles of the stuff. For that part of the sequence, I created a cooler look by removing the 1/2 CTO gel on the skylights. The mixture of 1/2 blued tungsten and raw daylight from above looked great on the fake white snow, and heightened the dawn effect."

The Throne Room, by contrast, was lit to be completely warm.

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Raising Tibet in the Desert

A palace interior is lit with large overhead fixtures aimed through silks.

When the Dalai Lama reaches this area, he discovers a crowd waiting to witness his coronation. "The people were sitting on benches, facing the Buddha," Deakins recalls. "It was going to be hard to light the set from below, and the roof of our 'stage' wouldn't hold very much weight. I rigged up a bunch of lightweight 10Ks on dimmers, just hoping the room could take them. These lamps were bounced off some 8' by 8' gold reflectors positioned in the rafters. Each lamp carried 1/4 CTO and was dimmed to about 60 percent to create a warm, golden look. I also positioned gag lights behind butter lamps on the floor — 1Ks or 500-watt bulbs dimmed down to around 2200°K.

"Of course, we could have lit everything straight tungsten and printed warmer, but I never think that really works as well. When you do something like that, you're exposing the emulsion in the wrong balance. Attempting to change that balance in printing will only alter the contrast and grain in the final print.

"When I'm told about a set, I draw it out and sort of sketch in what I think I should do," he adds. "On that particular set, I thought I was going to use a direct-light effect, but when I looked at the actual space, I decided that I wanted it to be a bit softer, so I wound up bouncing all of my lights."

Deakins says that the nature of the shoot, and its authentic sets, led the filmmakers to use Steadicam more often than expected. Although Scorsese has used this device sparingly in the past (mainly for meticulously staged sequences like the bravura tour of the Copacabana club in *GoodFellas*), he and Deakins decided to take advantage of English operator Peter Cavaciuti's considerable expertise. "Prior to shooting, when Marty and I went through the script and talked about camera moves, there were only two preplanned Steadicam shots. I had worked with Peter on *The Secret Garden*, though, and I knew he was a great operator; I had a feeling we'd be using him more on the actual shoot. We eventually worked out that he would be there the whole time, and we also negotiated to have his equipment there all the time. Once Marty saw how good Peter was, he gained an enormous amount of confidence in him. The moves didn't have the floaty feeling that Marty doesn't like; when Peter ends a move, it's rock-solid.

"The sets, by their nature, were built to look very real," he points out. "The floors were stone; we couldn't do the old trick of pulling the rails away as the camera passed by, because there was no

place for the people to get out of the way in these narrow corridors. Quite often, the only way we could do a sequence was with the Steadicam and the Moviecam SL."

The value of the Steadicam is illustrated in a key scene near the end of the film, when the Lord Chamberlain informs the Dalai Lama that foreign governments have refused to support Tibet as an independent nation, in effect siding with China. The sequence was blocked out as a Steadicam shot that would move backwards as the two characters walked through a long, winding corridor and into a study, where other Tibetan noblemen awaited them. "That sequence was initially broken down into a lot of different shots, some involving the Steadicam," Deakins notes, "but we wound up doing one Steadicam shot walking backwards in front of the guys, and another little piece of Steadicam over their shoulders as an intercut.

"We pre-lit the entire corridor for that," he explains. "There were some small side windows in this monastery set, and we also had several skylights to work with. The whole thing was lit in this soft, gray, cool and naturalistic way. I didn't use a lot on the floor at all, although I occasionally put some butter lamps down there with gag lights around them. We used big soft sources like Maxi-Brutes for the overall lighting through the windows. You need a big soft light outside the window so it wraps through the window; if you put a small unit directly through the window, you'll just get a shaft of light in one spot. Outside the windows I'd have a 20' by 20' light gridcloth with a row of Maxis going through it. The scene started off in darkness, lit just by butter lamps, and then the actors went through this side light from a little terrace area, which became a backlight as the camera pulled back. Next, they passed beneath a little skylight; we had some Maxi-Brutes aimed down through a gridcloth and

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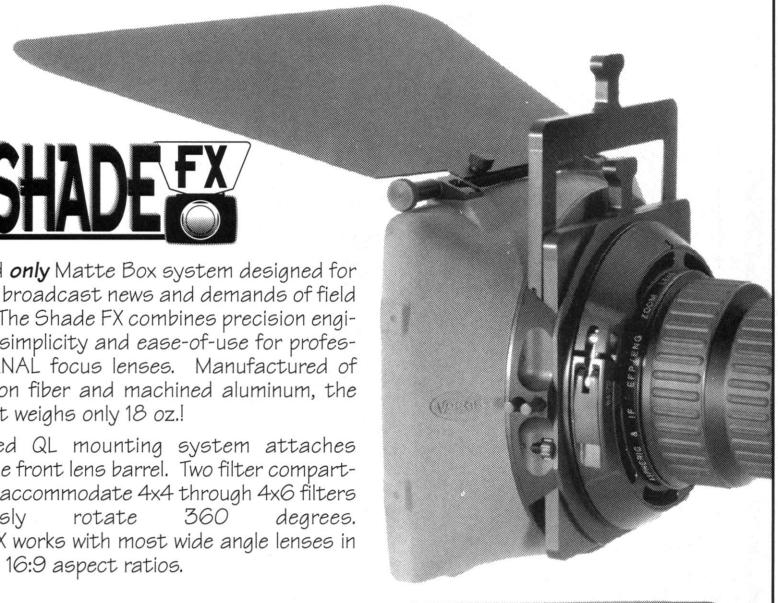

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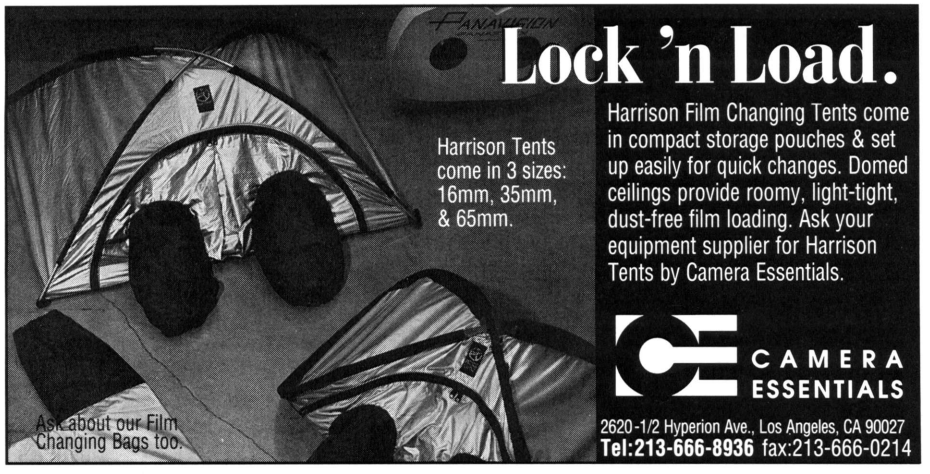
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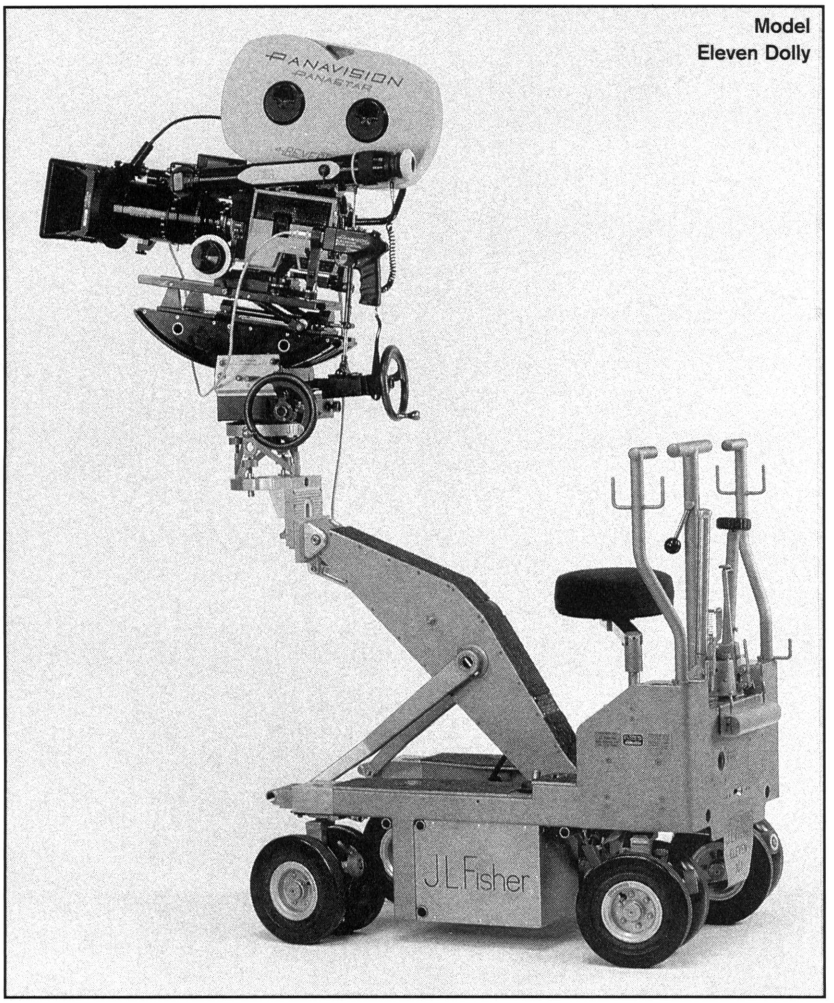
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then through another, lower piece of diffusion to provide a really soft toplight. After moving down some steps, the actors came into this much bigger and softer toplight source. Ironically, it can sometimes take longer to set up if you're trying to do something naturalistic, because you have to use more light! You're not trying to be stylized with fewer units and some hard shadows."

For other scenes designed to simulate the young Dalai Lama's POV, the Steadicam was used in low-angle mode. "A lot of the film is seen from the child's point of view. We did a lot of the earlier scenes with our main camera, an Arri 535B, at a really low angle, and we also followed him quite a bit with the Steadicam. We used other motion systems to get that effect as well. There's a big scene where the boy is pronounced to be the new Dalai Lama in this outdoor ceremony under a tent. All of the people from the surrounding countryside have come to see him, and he walks down this red carpet with rows of people along either side. Marty wanted one POV shot that started on the blue sky and then tilted down past the tent and this throne, which are glimpsed in the distance. The shot continues down until we see the kid's feet walking along the carpet, and then it tilts back up again to reveal these people looking at him. We had the camera offset on a little PowerPod remote head on an Aerocrane jib arm, and we used a slightly wider lens to catch all of the people in the frame."

To lend a dreamlike effect to certain scenes involving the Dalai Lama's point of view, Deakins executed a number of old-fashioned speed/aperture changes with his camera of choice, the Arri 535B. "It's harder to do than a shutter change, but I liked the idea of doing those shots with a stop change," he says. "If you change the running speed of a 535A, the shutter will change to compensate the exposure, and it doesn't

affect the depth of field; when you change the aperture, it does. I like slow motion where you've got a very shallow depth of field, because it sort of isolates the thing that's slow in the frame."

Reflecting upon *Kundun*'s overall visual style, Deakins notes, "This picture really isn't an epic; it's more of an intimate look at the life of an extraordinary person. During the prep period, Marty and I talked about *The Last Emperor* a bit, and how it was so vast and overpowering. I hope that our film is somehow more naturalistic and earthy. The story is really about the child, and it's seen primarily from his point of view. We generally didn't show much that he didn't experience firsthand. The invasion of Lhasa, for example, is mostly heard in the distance; we do have some shots of Chinese soldiers marching along, but that's it. As the Dalai Lama grows older, he becomes more aware of the political situation around him.

"In general, I used a lot of sidelight and toplight on this picture," he adds. "I started off thinking about creating shafts of sunlight through windows, but quite honestly, it was just impractical. Instead, I chose specific scenes that I would light hard; there are some scenes where people are sitting and talking amid this light that is just blasting in. Overall, though, the lighting is less showy and more subdued.

"Working on this show reminded me of some of the documentaries I've worked on," concludes Deakins, whose work on *Kundun* recently earned him awards for Best Cinematography from the New York Film Critics Circle and the Boston Society of Film Critics. "It was a bit like camping: we just had to make sure we took everything we were going to need! We had a complicated schedule, difficult sets, and a remote location. But in the end, I'm very pleased with what we accomplished." ■

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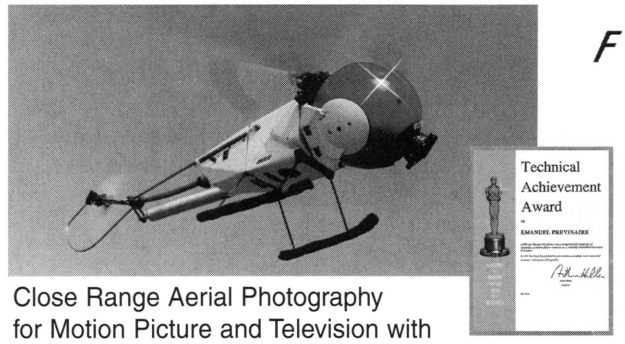

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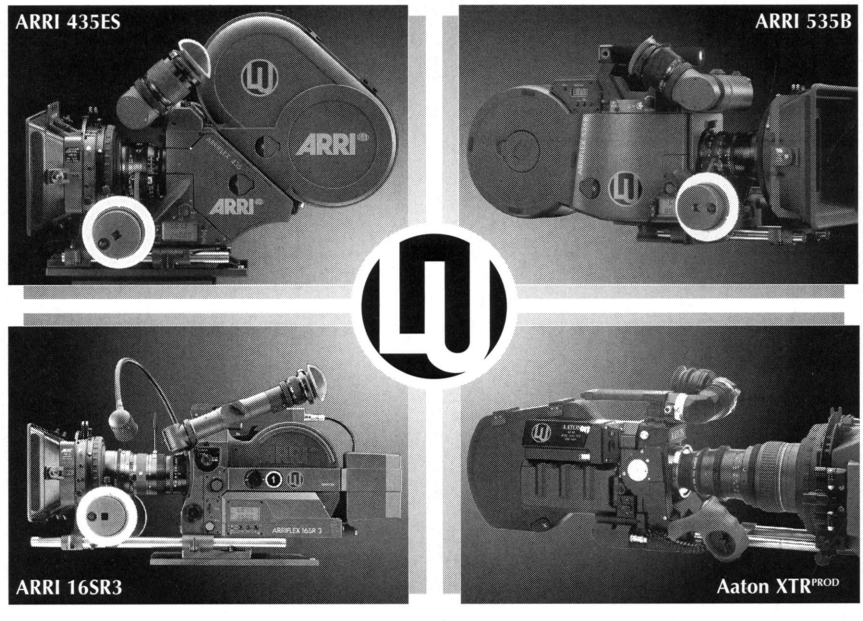

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Kundun:
A Kinder, Gentler Scorsese Film

Director Martin Scorsese takes the plight of the Tibetan people to heart in a lyrical motion picture that celebrates the Dalai Lama's enduring commitment to pacifism.

Interview by Stephen Pizzello

Photography by Mario Tursi

Martin Scorsese is renowned for his cinematic explorations of violent impulses and their consequences. Many of his best-known pictures — *Mean Streets, Taxi Driver, Raging Bull, GoodFellas, Cape Fear* — feature protagonists whose actions spring from baser human instincts. With *Kundun,* however, Scorsese explores the life of the 14th Dalai Lama, a man who has steadfastly opted for pacifism in the face of Chinese aggression.

Since China's military occupation of Tibet and his subsequent exile in 1959, the Dalai Lama has traveled the globe in the hope of gaining worldwide support for his cause: the restoration of his homeland's independence. Toward that end, he consulted closely with the filmmakers behind *Kundun,* helping to lend the project a striking sense of authenticity. The picture's emotional urgency was also enhanced by director

Scorsese's daring decision to cast nonprofessional Tibetan actors in most of the story's key roles.

Scorsese recently spoke with *AC* about his motives for making *Kundun,* and the techniques he used to realize the film.

American Cinematographer: **What sparked your interest in the Dalai Lama's story?**

Martin Scorsese: I've always been interested in religion, but primarily in people who live lives of religious conviction; I'm talking about people who really take the tenets of religion seriously, and are committed to it in their daily life. I've always been fascinated by movies about Christian or Catholic saints — films like Luis Buñuel's *Nazarin* or Roberto Rossellini's *Europa '51* [a.k.a. *The Greatest Love*].

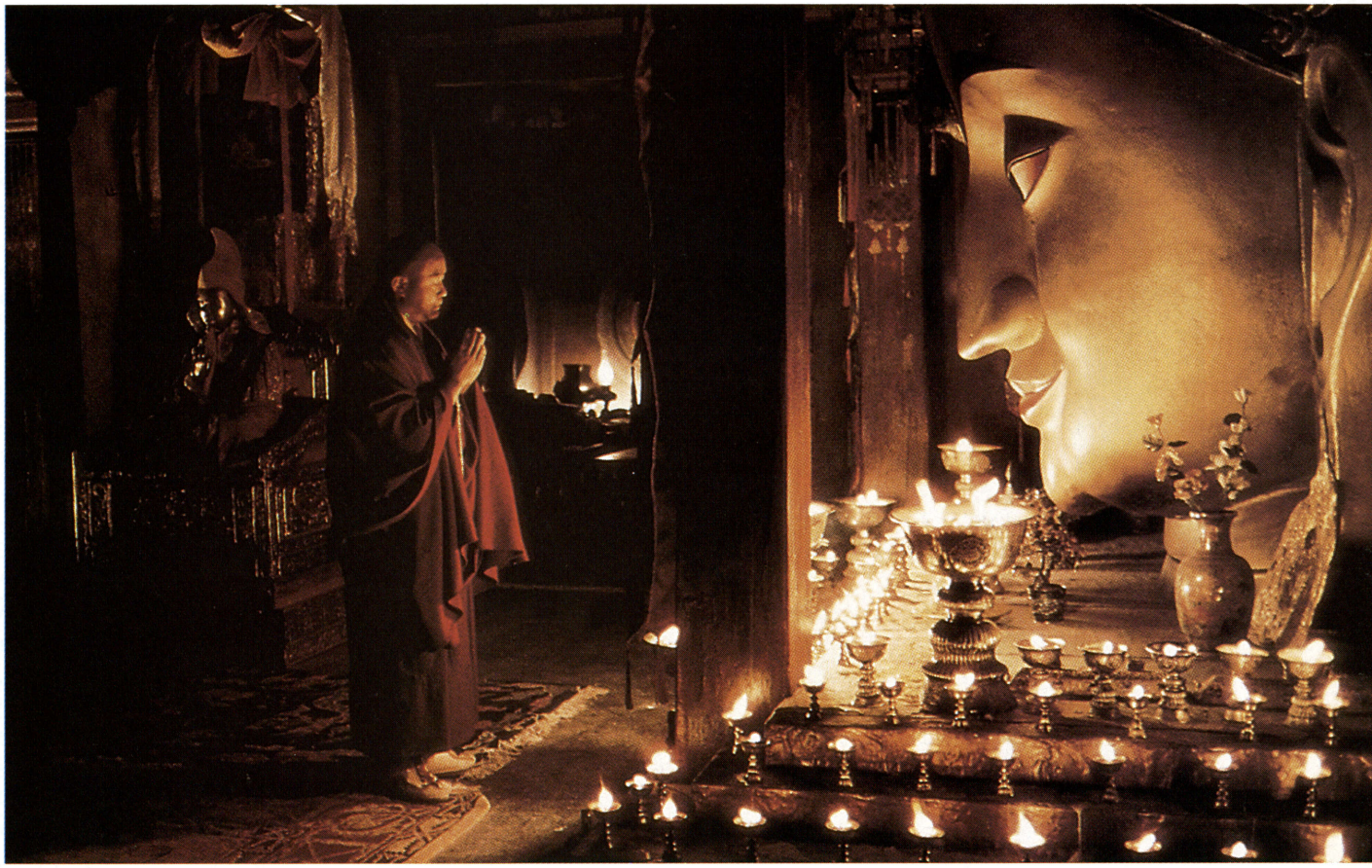
I often wonder how people can really live a life of complete religious conviction, one so strong that it dictates their actions. In the case of the Dalai Lama, that conviction is one of pacifism and nonviolence in the face of the most dramatic conflict you can have: another army and religion comes into his country, takes over and threatens to wipe out the Tibetans' way of life. How does a man who professes compassion, tolerance, kindness and pacifism deal with that?

I was primarily attracted to the idea of the Dalai Lama as a moral authority who is living among us and providing a good example for the world. He's someone who has had the great courage to live by the tenets of nonviolence, and I wanted to explore that issue by making a film about him.

What kinds of images did you have in your mind when you began thinking about Tibet?

Scorsese: When I was about 10 or 11 years old, I saw a film called *Storm Over Tibet.* It was a B-movie directed by Andrew Marton, who was a great second-unit director, and it was really a kind of compilation film. In the 1930s, he had shot some silent, black-and-white footage of Tibetan Sherpas and their rituals. In *Storm Over Tibet,* he intercut this material with a plot that was a kind of Cold War parable, combining the real footage with stuff that was shot on the backlot at Columbia.

Those images were always stuck in my mind: the rituals, and the behavior and authenticity of the Tibetan people. I'd never really seen anything quite like it. Later on, I saw movies like *Lost Horizon* and *The Razor's Edge,* which are both about spiritual quests. Over time, I became very interested in people who could lead a life in which the soul — the spirit — was more important than the physical body. I'm interested in what we're capable of as human



Opposite: Scorsese and actor Tulku Jamyang Kunza Tenzin preside over a miniature kingdom. Below: The Dalai Lama (Tenzin Thuthob Tsarong) prays for guidance before a golden likeness of the Buddha. Director of photography Roger Deakins sought to emphasize the look of his natural sources in these scenes.

Photos courtesy of Touchstone Pictures Company.

Kundun: A Kinder, Gentler Scorsese Film

beings, in terms of evolving further and becoming spiritual beings — rather than devolving into animals who commit acts of violence.

Tibetan dignitaries enter the Throne Room of the Potala Palace to witness the coronation of the new Dalai Lama. Bounce lighting and golden reflectors were used to illuminate this beautifully detailed set.

Did the political delicacy and complexity of the situation ever seem daunting to you?

Scorsese: Well, I'm not gullible to the extent of thinking that Tibet was some sort of Utopia or Shangri-la. There were a lot of problems; in a way, their political and social systems were still part of the medieval period. Tibet was going to clash with the 20th century one way or the other, and that clash would naturally cause some damage. But the extent of the damage that did occur was outrageous. In the past 40 years, 1.6 million people have been killed. Why? It's crazy.

Given this situation, I was naturally drawn to the Dalai Lama and the message he professed. When he received the Nobel Peace Prize in the late 1980s, the rest of the world began to realize that the Tibetans had opted for nonviolence. Basically, he's been dealing with the problem by traveling around the world and lobbying his cause. I thought that was really fascinating. Around that same time, I also saw a television documentary called *The Lost Tibet,* which made me realize what a crime the whole situation was.

By 1992, my agent called and asked if I'd be interested in doing a film on the Dalai Lama. I said yes, and [screenwriter] Melissa Mathison sent me her script.

After reading the script, did you do sketches or storyboards?

Scorsese: Yes, I did. I thought out a lot of the shots when I was in New York, in terms of how each shot should be made: in other words, should it be a dolly-in, should it be kept wide, should it go tighter, that sort of thing. I didn't know what the locations were going to look like, so in some cases the shots were altered a bit when we got to the real sites and our sets.

The sketches I made were primarily notes and small drawings, but I did have to do some more extensive drawings for the first sequences involving the two-year-old boy [Tenzin Yeshi Paichang] who plays the young Dalai Lama, because we had to use several doubles for him: one for his hands, one for his eyes, and one for the back of his head. I drew those shots out and Roger Deakins figured out which angles to shoot first.

You certainly got an amazing performance from the little boy.

Scorsese: It wasn't me; it was Roger, first assistant director Scott Harris and the camera crew. They had little airplanes and balloons hanging from the camera so the kid would look there, and toys, and all kinds of things to keep his attention. The other Tibetan performers helped out a lot too. They took it upon themselves to keep him amused, but it could be rough at times, because we were shooting those scenes for about 11 days. He's a wonderful kid, and he's got a great face, but if a two-year-old doesn't want to play, he's not gonna play!

What led you to contact and then hire Roger Deakins? Had you been following his career? Were there specific aspects of his past work that you admired?

Scorsese: I've particularly liked the lighting in a number of films Roger has done; his work reminded me of the way a painter uses light, or of the way Jack Cardiff [BSC] or Freddie Francis [BSC] photographed films in the 1940s and '50s — using color a certain way, particularly as Cardiff did. I had seen a number of the films that Roger had shot, including *Pascali's Island* and *Mountains of the Moon.* I really liked the way color was applied in these pictures, almost like paint. It reminded me of the old Technicolor that I really liked.

I've also admired the films of Chinese filmmakers such as Zhang Yimou [*Raise the Red Lantern*], Chen Kaige [*Farewell My Concubine*] and Tian Zhuangzhuang [*The Blue Kite*]. There's a certain naturalistic lighting in their films that I think is quite beautiful, and Roger does similar types of things, lighting through skylights or windows.

You were denied permission

"It seems that it's Phil's passion to take an object or event and show it in an entirely new and exciting way."

— Martin Scorsese

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Kundun: A Kinder, Gentler Scorsese Film

to shoot the film in India. Was that primarily a political decision made by the Indian government?

Scorsese: I think so. They were very nice to us, but as one of the ministers pointed out to us, they've been sheltering the Dalai Lama and all of the Tibetan refugees since 1959. China is right on India's border, and it's a big country that's on the move. India didn't give us an outright refusal, they just told us that they 'couldn't give an answer at this time.' We all understood what that meant, so we quickly made a move to get down to Morocco.

Was your decision to shoot in Morocco based partly upon your experiences working there on *The Last Temptation of Christ?*

Scorsese: Yes, [executive producer] Laura Fattori had done a lot of films in Morocco, and [producer] Barbara De Fina and I had done *Last Temptation* with her there. Dante Ferretti, our production designer and costume designer, had worked in Morocco before. When we realized we weren't going to shoot in India, Laura and Dante immediately got on a plane and went down to Ouarzazate to look around. As I understand it, *Seven Years in Tibet* had a much bigger setback [in terms of their locations], because they had already begun building sets in India.

In a way, working in Morocco worked out better for us, because it might have been more difficult for us to function within the Indian style of working in short periods throughout the day. You need time to be in a country, get to know the people, and understand how they work.

Essentially, you were asking production designer Dante Ferretti to build Tibet in the desert, and without the benefit of a large budget. From what I understand, the Atlas Film Studio in Ouarzazate is not exactly state-of-the-art...

Scorsese: [Laughs.] The Atlas Film Studio is certainly something. It was bigger than when I had last seen it 10 years ago, when it was just a wall! There was a big wall that went on for about the length of your average city block, and in the middle of the wall was a big gate with doors. The doors would open, and when you went through there were a few offices, a small 'soundstage' and nothing else. Nothing! In fact, we got some shots of caravans moving through the desert right there, simply by turning our cameras to face the desert.

For the purposes of this picture, we built a second, larger soundstage, within which Dante and his crew constructed the interior of the Potala Palace. So we had two soundstages to use.

Like most of your recent films, this picture was shot in Super 35. Did you choose that format over anamorphic for your usual reason — to avoid panning and scanning when the film is eventually broadcast on television?

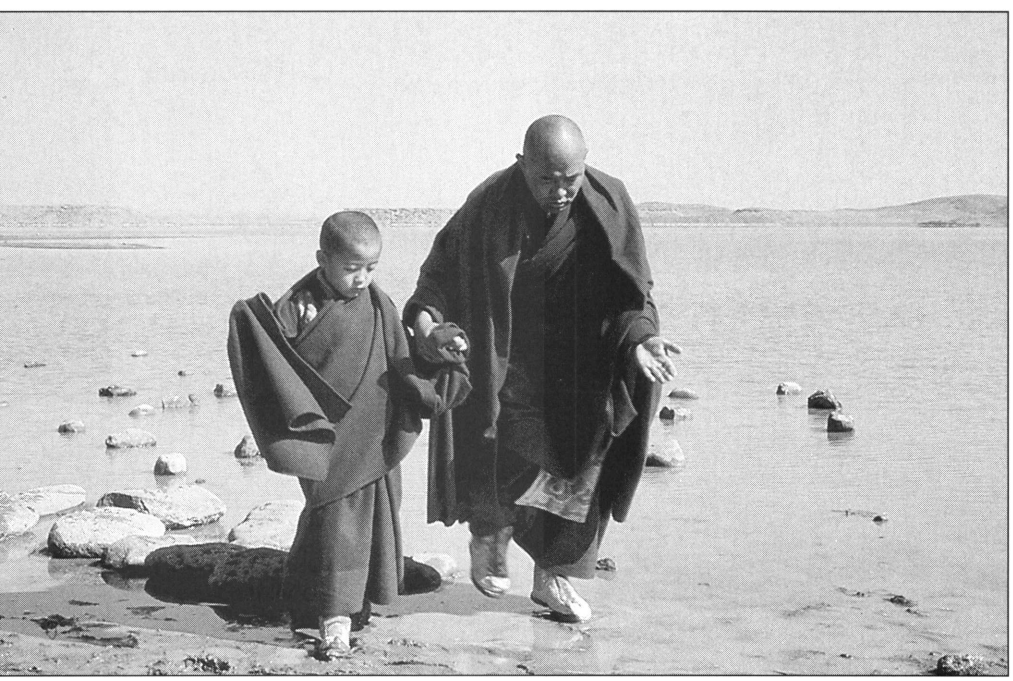
Scorsese: Exactly. It's a trade-off, because you get a little grain when you go through the duping process with Super 35. But I must say, I'd rather not have the compositions altered. I'd rather make two compositions and let it go that way.

Plus, with Super 35 you get the added benefit of faster lenses, which must have helped with some of the dark interiors on this film.

Scorsese: Absolutely. Those shots came out so beautifully. I would love for my films to be done in [Technicolor's new] dye-transfer process, but it isn't ready yet. It's going to go online soon. On this film and on *The Age of Innocence,* I really could have used the dye-transfer; it would have looked great. I was greatly disappointed that I couldn't do that on *Kundun.*

Roger said that you initially considered using offsetting compositions, but eventually opted for more symmetrical framing. Did you feel that symmetrical compositions better reflected the formality of Tibetan society?

Scorsese: Yes, that's a good point. Once I saw the Tibetans themselves in the frame, their body language dictated certain compositions. When I tried to do other things I felt as if I was interfering with them — not as actors or people, but with their presence, their philosophy, and their spirituality. All of the frames seemed



The young Dalai Lama benefits from the sage guidance of a spiritual advisor (Lobsang Samten).

to come together around the presence of these Tibetan people in the picture, none of whom were professional actors.

It's interesting that you chose to use nonprofessionals in the film's key roles. How did that affect your work as the director? Did you ever find that you had to depart from your preconceived shots or setups?

Scorsese: On any film, some of the things that you preconceive don't quite work when you get to a location or a set. Quite honestly, I can't tell you when I last spent time in the Dalai Lama's meeting room at the Potala. [Sardonic laughter.] I've never been there, of course, and I'm not going to be able to go. And even if I did go, it wouldn't look the way it did when the Dalai Lama was there. Because of that, I had to feel my way through with preconceptions, and try to get certain philosophical points across in the design of the shots. I then had to fit those plans into the locations and sets when I got there.

Beyond that, the presence of the Tibetans — the way they behaved, and their body language — certainly did alter a lot of what I had planned. In the end, a lot of the real work was done during the shooting rather than in the planning stage. Even though I had planned out each shot, I modified those plans to accommodate the spirit of the film. For example, I might loosen or tighten a shot because of the way a robe looked on an actor. The robe might be a statement in itself, and in that case I'd want to show more of the costume.

I did preconceive certain camera moves or effects for particular editing points, and most of those were done the way I had planned them.

Roger told me you used two cameras while filming the little boy's scenes, in order to cover the best takes. Did you use multiple cameras elsewhere in the film?

Scorsese: No, I generally don't like using multiple cameras because that type of approach to a scene feels 'undirected' to me. It's fine if you're doing a battle scene or blowing up a building, but I certainly wouldn't do it on a film like this. It also affects the lighting, and I don't like those types of compromises. I did consider using multiple cameras for a few [other] scenes, but then I realized it just wasn't right for this picture. We just moved on shot by shot.

You seem to be particularly fascinated with the concept of rituals. In *The Age of Innocence,* you re-created the elaborate society dinners; in *GoodFellas* and *Casino,* you delved into the inner workings of the Mob; and in *Kundun,* you explore various Tibetan prac-

Kundun: A Kinder, Gentler Scorsese Film

A crowd of Tibetans surround the Dalai Lama at a jetty. This location provided cinematographer Deakins with a formidable challenge during one of the film's night shoots.

tices and rites.

Scorsese: Yes. Those types of things define the characters as people, and help to show who they are. Once we're thrown into the middle of the characters' world, and we start to feel comfortable with them, they hopefully become less strange and different to us — whether it's Nicky [Santoro, played by Joe Pesci] in *Casino* or the Dalai Lama in *Kundun.*

When I've made movies about gangsters, for example, I wanted the audience to begin to identify with them. Their behavior is an aberration, but it's still part of being a human being. What is a human being, really, if *we're* capable of doing what those guys do? Are you and I capable of that type of behavior? Maybe, maybe not, but a lot of people are. It gets right down to the definition of what a human being is: is it our destiny to evolve spiritually, or devolve back into being animals?

The big challenge on *Kundun* was to make the audience feel at home with the Tibetans, because there are no Westerners in the film. We simply throw the viewers right into a family breakfast in Ando Province in the 1930s. I wanted to capture for the audience the communal human thread that unites us all, rather than looking at these people as curios.

Did you consciously tailor your camera moves and editing decisions to the slower pace of Tibetan life? I noticed that you used dissolves rather than hard cuts through most of the picture.

Scorsese: Definitely. I found the dissolves to be like little brushstrokes. I was playing around with them as I had on *The Age of Innocence,* where I'd dissolve the middle or end of a shot out to get a wash of images. On *Kundun,* I wanted to create one long montage, or dreamlike effect, to convey what it must have been like in this particular world of Tibet.

In *GoodFellas,* for example, there just wasn't any room for dissolves — they simply wouldn't have reflected the lifestyle of the characters. Those guys wouldn't dissolve! It was more, 'You're coming with us' and bang! — cut to a car.

Some people feel that's the best way to tell a story, but I don't think hard cuts are appropriate for every story. Otto Preminger, for instance, loathed dissolves. His style was very objective. His later films — the ones he did in 'scope or the ones from *The Man With the Golden Arm* on — were played out in medium-wide shots, with hardly any intercutting to close-ups in the formal sense. That style created another kind of reality; [Preminger] didn't make judgments on people by cutting back and forth, or cutting to different angles.

I happen to like dissolves a lot, but one has to be very careful when

using them, because they supposedly slow the picture down. In *Kundun,* I wanted the pace to hopefully match the spiritual life of Tibet. I hope viewers understand that before they go to the theater, because this picture has a different rhythm and pace than most American audiences are normally used to. Some people may not be in the mood for it.

There was more Steadicam work in this film than you normally use. When we've spoken in the past, you've told me that you usually like to use Steadicam for very specific or predesigned purposes, such as the famous Copacabana shot in *GoodFellas.*

Scorsese: I used Steadicam more on this picture because we had a very good operator, Peter Cavaciuti. It also cut some of our production time down, because otherwise we'd have had to lay down dolly tracks in the desert, and it might have taken longer than we'd hoped to get certain shots. Peter was so good that we felt we could go with him.

Did you use any other types of camera motion systems on the film?

Scorsese: Roger used a remote camera arm for certain scenes, but that was it. Basically, I like straight dollying — just setting up a crab dolly and moving it back and forth.

Roger also told me that you did old-fashioned aperture changes with your Arri 535B for certain sequences.

Scorsese: That was something I asked for. You can see the results in the scene where the Dalai Lama is leaving his palace at night, and says good-bye to his old friend Norbu. As the Dalai Lama is riding away on his horse, he looks back, and Norbu begins to fade away. That was done with the aperture. In a way, the shot implies that Norbu is going to fade away and die. I think the aperture change creates a much better feel than an actual fadeout done optically. It's done by hand, which is so much more interesting. I did some of that in *The Last Temptation of Christ,* but I had to be careful about overusing it because a real hand iris is so much fun to do. Nestor Almendros [ASC] did that type of thing on Francois Truffaut's film *The Wild Child,* and demonstrated it for me while we were shooting "Life Lessons," my segment of *New York Stories.* Doing things by hand makes a film more personal.

At the opposite end of the technical spectrum, you also used CGI to flesh out various scenes by adding in the Himalayas or the exterior of the Potala Palace.

Scorsese: Oh, sure. The reality is that we couldn't build the entire Potala. One has to be very careful, of course, because mattes can become very expensive. Some of the moun-

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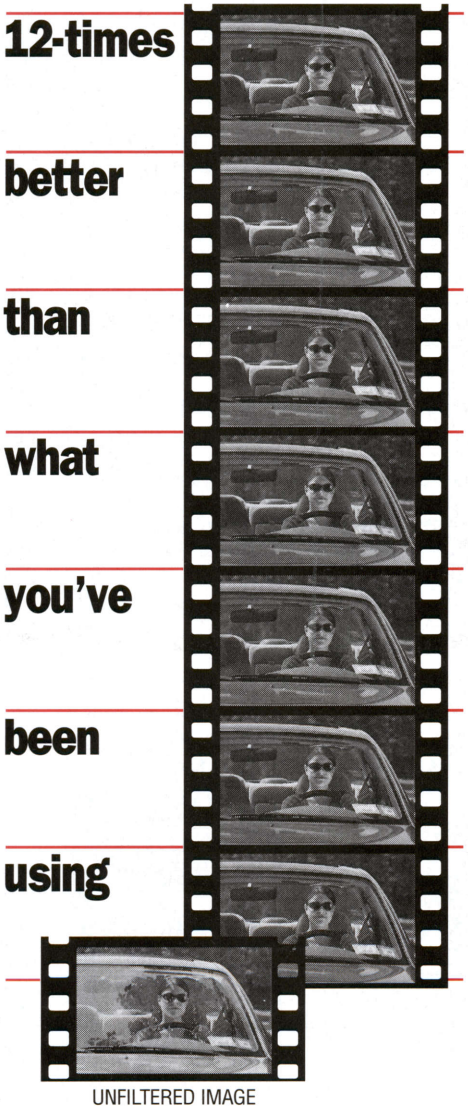

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tain shots in the film are real; there are only about three shots where we added digital mountains. When you're doing that, you have to know what you want. It's sometimes hard to get the character of a culture or a location in a matte painting. You can get the detail, but you might miss the character — how worn a building looks, for example. There are also other considerations: Where's the light coming from? Should it be a darkened sky? How much shadow should there be on the buildings?

Apparently, technical matters weren't your only concern on this project. The Chinese government has condemned the film, and I understand that a Chinese delegation showed up on the set at one point.

Scorsese: Luckily, that happened on our last day in Casablanca, when we were shooting at the city's old airport. A friend of mine who understands Chinese overhead some gentlemen discussing whether the actors playing soldiers in our scene were Chinese, Tibetans or Moroccans. She found out that they were from the Chinese embassy, so they were asked to leave. We were concerned that they would take photographs of the Tibetans to use against their families. They were there for maybe 45 minutes before anybody caught on. It was highly unpleasant.

Do you personally feel that there will ever be a peaceful resolution to the situation that will allow the present Dalai Lama to return to Tibet?

Scorsese: I'm just a private citizen with my own political views, but my whole perception is that [the Chinese] should at least begin a dialogue. In the case of Tibet, the culture and religion are one and the same, and they should not be completely wiped off the face of the Earth. Ultimately, I think we in the West could learn a lot from the Tibetans' culture. ■

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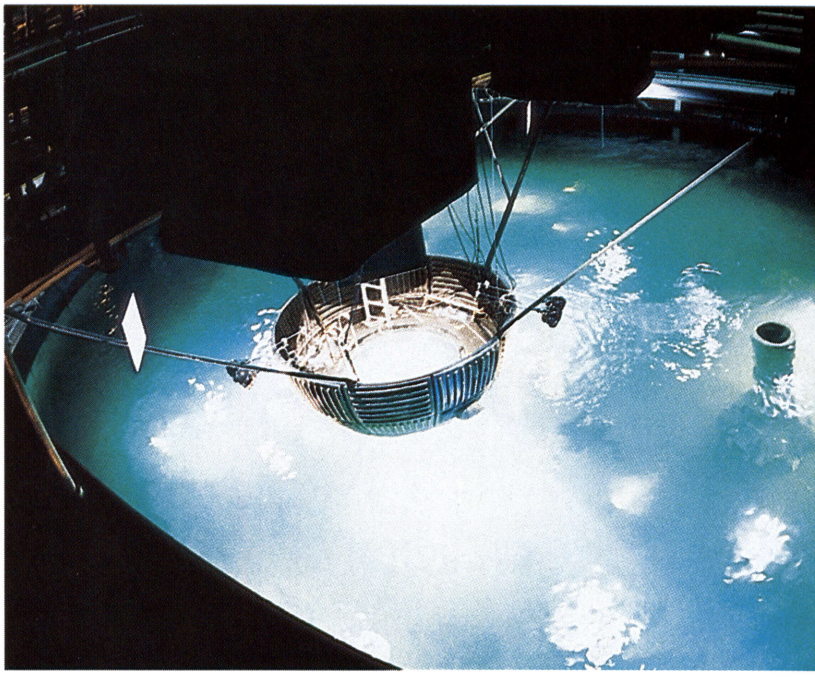
Voyage to the Bottom of the Sea



Photos courtesy of Warner Bros.

Director Barry Levinson and cinematographer Adam Greenberg, ASC plumb the ocean's darkest depths in the sci-fi thriller *Sphere*.

by Christopher Probst

Photography by Brian Hamill and Nathan O. Johnson

Seabound stories have always appealed to filmmakers, but the harsh realities of working on or under water have proven time and again to be exceptionally burdensome. In the wake of such aquatically encumbered projects as *Jaws*, *The Abyss* and *Waterworld*, many filmmakers have learned to be leery if the "W" word is mentioned at a production meeting.

When Warner Bros. decided to produce a film from Michael Crichton's best-selling novel *Sphere*, however, director Barry Levinson (*Avalon, The Natural, Bugsy*) was lured by the siren song of the sea. "I was interested in *Sphere* because I felt it was a different kind of science-fiction project," says Levinson, who had helmed a previous Crichton adaptation, *Disclosure*. "Perhaps it's more of a [narrative] throwback to the older science-fiction films, because *Sphere* is really about the imagination — or in this case, a 'manifestation.' It's not really a monster movie or standard sci-fi film. To me, the story is more an acceleration of paranoia as a night-

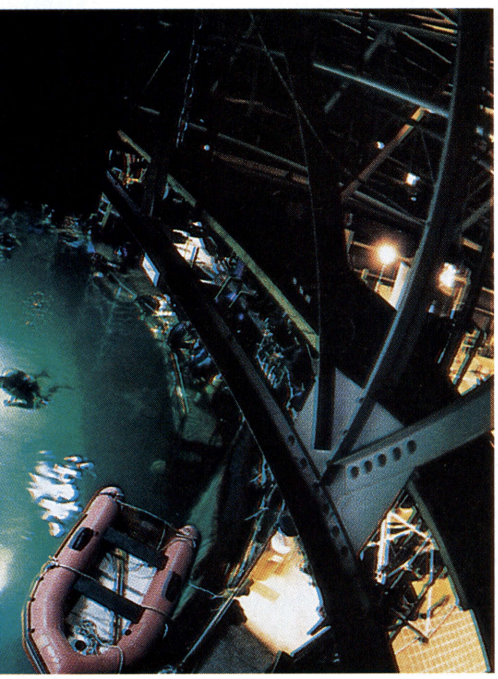
mare unfolds, and I thought it would be interesting to play with that."

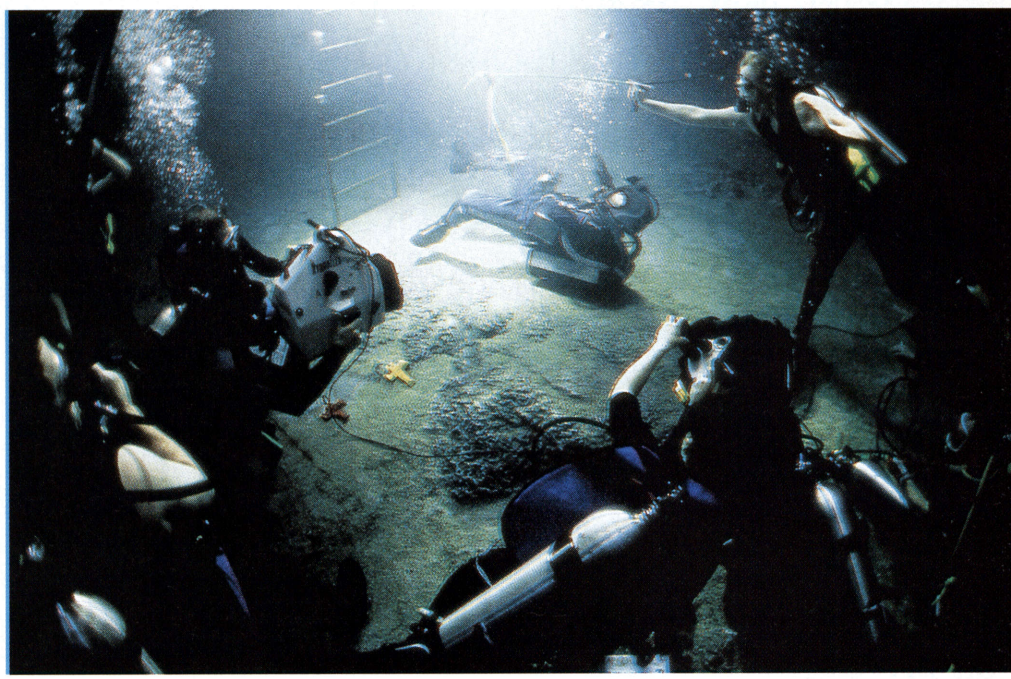
The premise of *Sphere* is that the U.S. government has discovered a massive alien spacecraft that has been submerged on the ocean floor for more than 300 years. The authorities have called in a cadre of specialists, including psychologist Dr. Norman Goodman (Dustin Hoffman), biochemist Beth Halperin (Sharon Stone), mathematician Harry Adams (Samuel Jackson) and mysterious team leader Barnes (Peter Coyote) to investigate the ship. These adventurers descend 2,000' below the waves to an underwater habitat constructed near the downed spaceship, where they soon encounter a series of bizarre, horrifying incidents — each of which springs from a respective crew member's own subconscious fears. When the habitat is cut off from the surface, the scientists are trapped within its claustrophobic confines, where they must confront their own personal nightmares.

With the project greenlighted by Warners, Levinson approached director of photography Adam Greenberg, ASC to join him on the film. The two men had previously collaborated on *Toys* (see *AC* Dec. 1992), and the cinematographer also had extensive experience in both the science-fiction and action genres, having shot both *Terminator* films for James Cameron (*AC* April '85 and July '91), as well as the features *Alien Nation* (*AC* Sept. '88), and *Eraser* (*AC* July '96). Greenberg's other diverse credits include *The Big Red One*, *Ghost*, *Dave*, *Three Men and a Baby* and *First Knight* (*AC* July '95).

"*Sphere* was very complicated because the story takes place almost entirely underwater," Greenberg submits. "There are basically just four or five day exterior shots in the film — scenes in which the actors were in a helicopter, which we filmed against a greenscreen on a stage. At the beginning of the film, the characters arrive on a ship, walk through some small rooms and then go underwater for the rest of the picture. Virtually the entire movie was shot on stage, which required lighting that would provide a visual representation of where they were. It was a 100 percent manufactured world, so there were no available light sources. We weren't given any break from having to create this environment."

During prep, the production sought to film the extensive underwater sequences in an abandoned Naval dry dock facility near San Francisco, where the sets could be built, flooded, and then covered to block the sunlight. However, as Greenberg began researching the problems associated with filming in water, he questioned the idea of being exposed to the elements while shooting in what would become a 600' x 40' tank. "I was still shooting *Eraser* when I was offered this movie," Greenberg relates, "so during the early prep they would bring me to Northern California once a week to consult. At a certain stage in the preproduction, however, the studio realized that the film was going to be





Far left: An overhead view of one of *Sphere*'s underwater tanks, constructed in Northern California. Below: The underwater unit films outside the habitat set with Arriflex 35-III cameras encased in watertight Hydroflex housings. To create the strong light piercing the water from above, gaffer Steve McGee utilized Maxi-Brutes with 1200-watt Firestarter globes.

Voyage to the Bottom of the Sea

too expensive to make, so they shut the production down and began looking for ways to reduce the cost.

"I think Barry was a little upset [with the delay], so he went off to shoot *Wag The Dog* [with director of photography Robert Richardson, ASC]. By that time, I had started to shoot some underwater tests in a normal swimming pool that I had blacked out, because I didn't know anything about underwater lighting and I wanted to get a feel for it. Also, I needed to learn how to dive and become certified so that I could shoot *Sphere*.

The foreboding exterior of the habitat environment. Explains Greenberg, "Initially there was a lot of concern about the clarity of the water. I felt it was much better if the water was dirty! It looked much more real with particles in the water. And right after that I saw footage on CNN showing divers recovering wreckage from TWA Flight 800 that looked almost exactly like our film. So I think we were very true to reality."

"I also watched a lot of films with underwater scenes in them, like Jim Cameron's *The Abyss* [shot by Mikael Salomon, ASC] and the 'making of' documentary on the *Abyss* Special Edition laserdisc. I didn't want to make the same mistakes others had encountered; I wanted to simplify things and avoid going through an unpleasant experience. I think in filmmaking there's always another way to do a shot. What's important is how it looks, not how you did it. Does it work for the story, for the scene? My way [of filmmaking] is to find the simplest way to achieve what you're after.

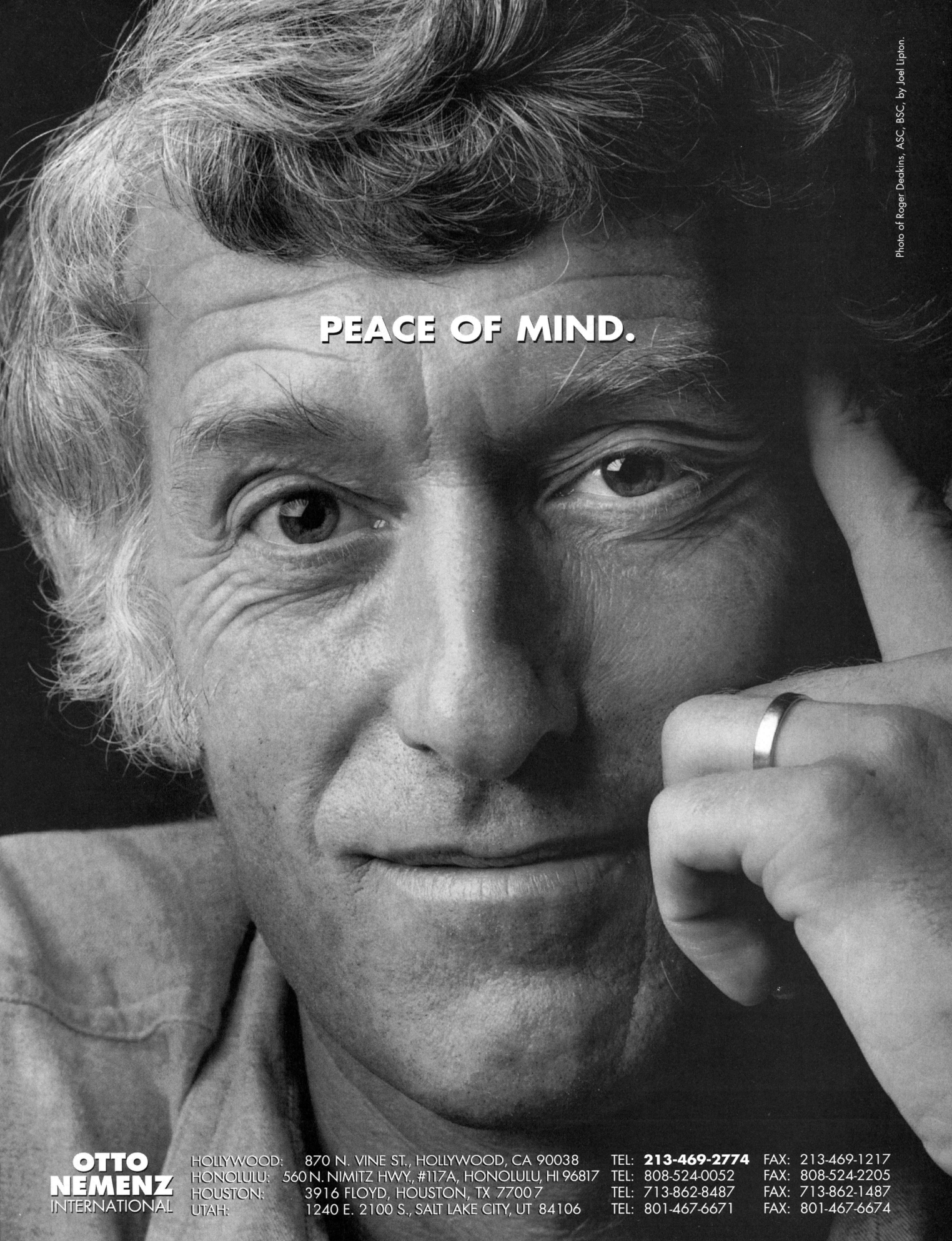
"I felt that the [*Sphere*] production should forget the idea of shooting in the dry dock. It was going to cost us $150,000 just to build the cover we'd need to block out the daylight, and based on my underwater tests, I felt that we really wouldn't have any control in the dry dock tank. We needed to be in a place where we had complete control over all the elements."

"I want the lighting to be honest — proper for the story and efficient for the production. I fight for the proper look, but I also fight to achieve that look within the schedule and the budget."
— Adam Greenberg, ASC

Greenberg's tests also indicated that the production wouldn't need an infinite amount of underwater space to sell the illusion of being 2,000' below the surface, as the film's narrative demanded. Instead, he felt that shots made just 15' underwater, in a blacked-out pool, could look like the deepest, darkest depths of the ocean if lit properly. The cinematographer recounts, "When Barry saw my tests, he said, 'It looks like it's 1,000' deep!' But I was only 7' down in a swimming pool. So I suggested that we build our tanks inside a soundstage. If you make a [logistical] mistake at that stage of preproduction, you'll have troubles like they did on *The Abyss*, or on *Waterworld* [see *AC* Aug. '95]. I told the studio, 'If you go with the dry dock, we'll be three weeks behind after just one week of shooting.' But when they heard about the changes we were suggesting, they gave the film the go-ahead once again."

Levinson reveals, "We were able to shoot *Sphere* in 69 days, even though it was scheduled for 90. There are light comedies that are shooting for 75 days, so what we accomplished in that period of time is really astounding. You don't win any prizes for being fast, but sometimes shooting quickly and efficiently supports creativity. That's the only guideline I follow. I like the shoot to be a little more focused and driven; it keeps everybody pointed in the right direction in terms of what needs to be done, and I think a certain dynamic comes from that."

"I think we were able to do this film so quickly solely because we didn't shoot in the dry dock," Greenberg maintains. "I was pleased that I came up with a good idea that saved the production time and money. [As a cinematographer,] you don't really want to be involved with a film that is budgeted for $35 million and ends up costing $145 million. I think the cinematographer is responsible for staying on budget. I want the lighting to be honest — proper for the story and efficient for the production. I fight for the proper look, but I also fight to achieve that look within the schedule and the budget."



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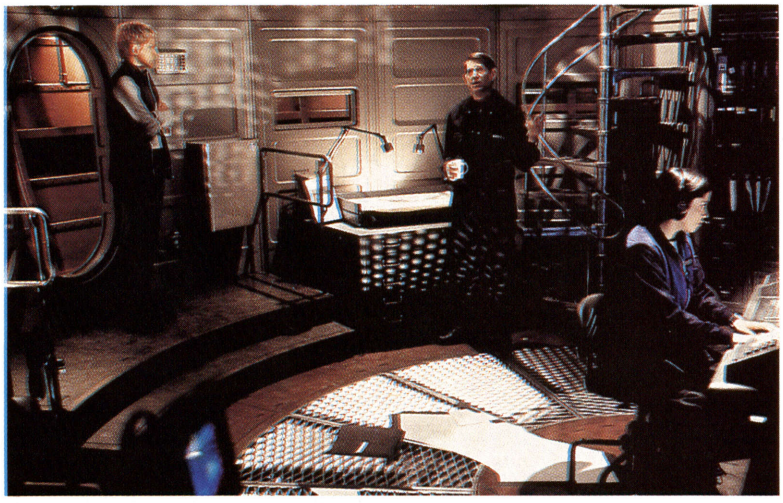

Right: The main com-room inside the habitat. Says Greenberg of illuminating the set, "I sometimes played with up-lighting from below the grids on the floors, using a 5K open eye to create a hard grid pattern on the actors." Below: Early in his previsualization, Greenberg envisioned the underwater sequences to be illuminated primarily by the actors' helmets and Xenon flashlights, creating a sense of limitless depth. Opposite page: Greenberg (center) and Levinson discuss blocking with actor Samuel Jackson.

Once the filmmakers made the decision to shoot in shallow tanks, the construction of several sets — including an enormous four-story habitat structure that was, for all intents and purposes, a practical location — began in warehouses located on Mare Island, a former Naval base located in the San Francisco Bay. Academy Award-winning production designer Norman Reynolds (*Star Wars, Raiders of the Lost Ark*) supervised the construction of five water tanks — ranging in depth from 19 to 26 feet — to contain the exteriors of the habitat, as well as the alien craft. The tank interiors were dressed with rock and sand to simulate the foreboding appearance of the ocean floor.

Prior to the start of principal photography, Greenberg began shooting with the second unit to establish the look of the underwater scenes and sets, utilizing Arriflex 35-III cameras and Zeiss Superspeed lenses supplied by Otto Nemenz. All of the equipment was encased in watertight HydroFlex housings. The cinematographer elected to shoot the underwater sequences on Eastman Kodak EXR 5293 stock. "I spent the first three weeks of the production underwater," recounts Greenberg. "We had a great underwater crew with Gary Capo [who also shot second unit] and Ian Fox operating, and David Ellis as the second-unit director. During that period I was generally underwater for six or seven hours a day.

"Even though we were supposed to 2,000' down, I didn't want the underwater scenes to be in total darkness. I wanted to be able to see into the distance a bit, so I had Maxi-Brutes rigged over the tanks to provide even lighting. I softened those units with either 216 or light grid-cloth and gelled them slightly blue-green with 30 cyan and 1/4 CTB. Although that footage was about three stops underexposed, it didn't go totally dark; we could still see some detail. Because of the nature of water, though, you could see from 6' away, but not from 20' because the water absorbed the light. It's like a filter, and even a really hard light would be diffused by just two feet of water. If I was 20' away from a section of the habitat, you could barely see some of the light sources, and you couldn't make out the shape of the set yet. As the camera moved closer, the structure would appear in front of your eyes, which was a very natural effect."

Greenberg also sought a way to effectively light the actors' faces while they performed in their deep-water diving helmets. To prepare for those shots, he first studied what other filmmakers had done in similar situations, and then adapted their techniques to his own requirements. He explains, "I wanted the hottest source in the darkness to be the faces of the actors, which were lit by the lights on their helmets. Usually, if not always, I overexposed their faces up to a stop. I had two MR-16 quartz lights built on top of the helmets, shining into a [70/30] mirror and bouncing back through Plexiglas and diffusion onto the actor's faces. I was able to change the diffusion — 216, 250 or opal — and add color to the helmets as well. Underwater, everything tends to look green and bluish. That's fine for the water, but I didn't

want the actors to look green-blue. Therefore, I warmed up their helmet lights a little bit. Each actor had his or her own specific lighting requirements. Dustin [Hoffman] has fairly

dark skin, so he needed more light than Sharon [Stone]; Samuel Jackson required a lot more light. I was able to control everybody's individual helmet light. Anywhere they went underwater, they had their own illumination."

The cinematographer also notes that he dealt with the problem of unwanted light reflections early on in his underwater lighting design. "They had a big problem on *The Abyss* with light bouncing off the surface of the water above — which can act almost like a mirror — and reflecting back down," says Greenberg. "In my tests, I figured out that if I used snoots on all my lights in the water — most of which were individual Pars or Maxi-Brutes — I could eliminate the light bouncing off the ceiling of water and just light the actors. It was simple from there. I didn't even use any flags, just snoots."

Greenberg's longtime gaffer, Steve McGee, elaborates on the submerged illumination scheme: "Our toplight tended to create light ripples and reflections on the bottom surface of the tank — of course, you wouldn't see any toplight if you were really 2,000' down, so we always had to make sure to put up lots of blacks. [To further control the light,] I'd use Firestarter globes in our Maxi-Brutes. Firestarters are 1200-watt, inverted-globe Par 64 lights, but since they're inverted, they're like

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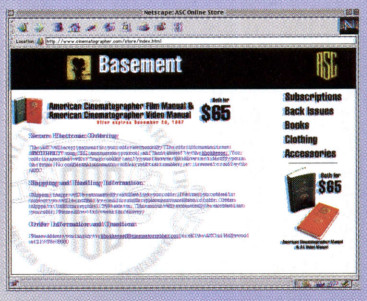

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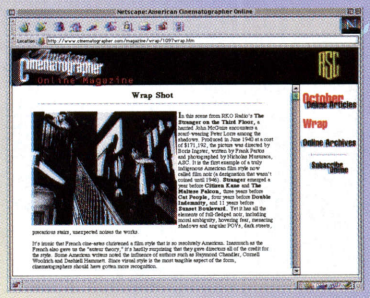

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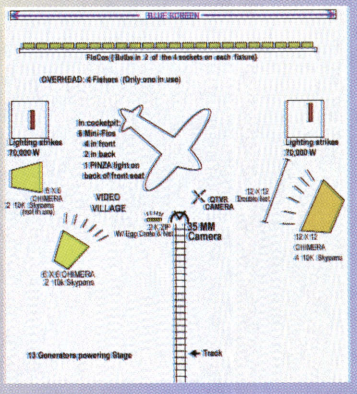
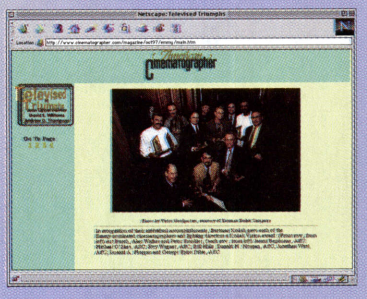




For further information, send queries to **coordinator@cinematographer.org**, or call the American Society of Cinematographers at **(213) 969-4333.**

Voyage to the Bottom of the Sea

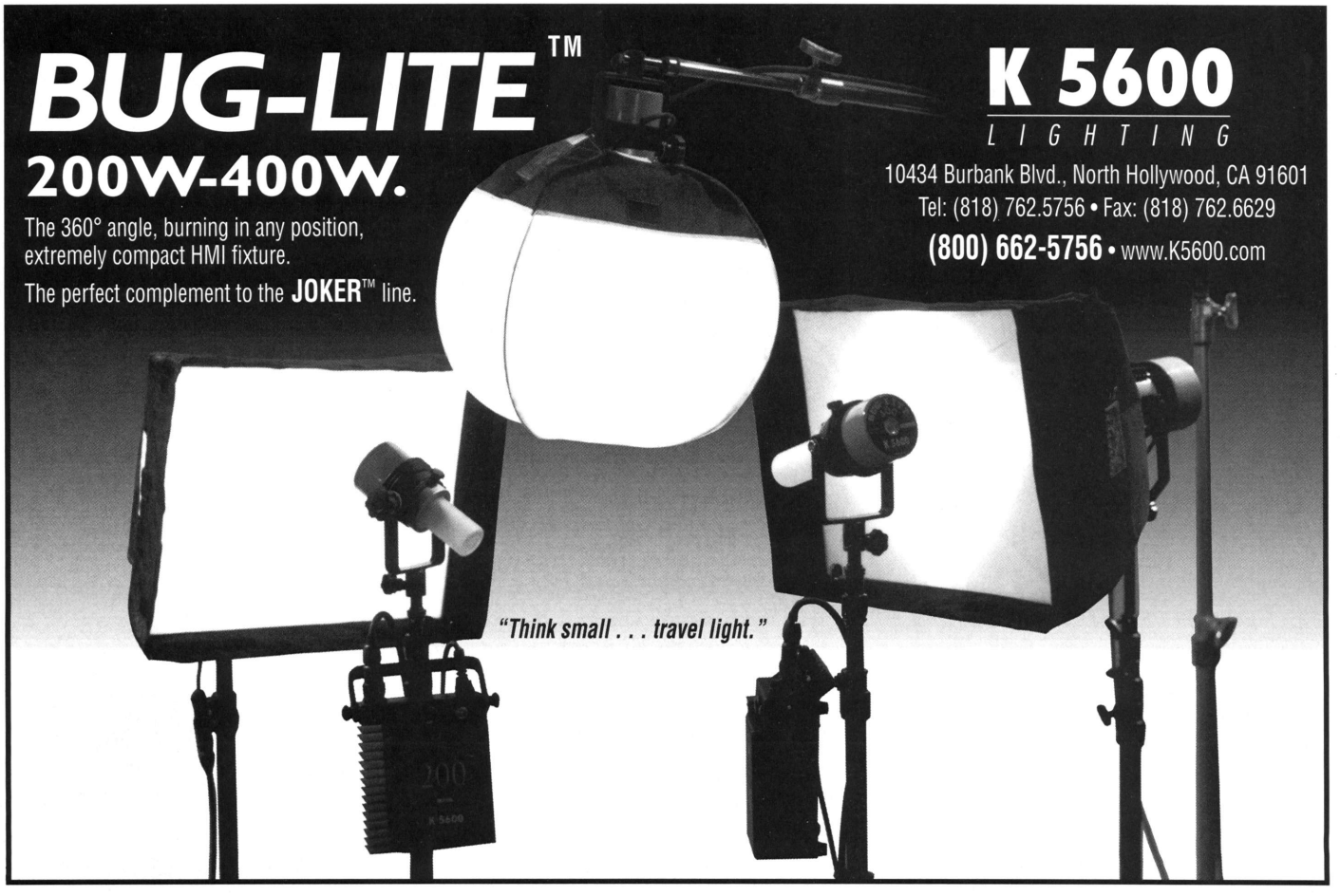
Opposite: Construction of the habitat exterior prior to its submersion in an icy oceanic netherworld.

1200-watt super-spots. They're excellent globes, and I'd previously used them in Maxi-Brutes and Dinos when I needed to light extreme distances. I had never used them underwater, though, and they turned out to be very beamy."

Greenberg employed two additional lighting motivations in his underwater photographic design. The first involved having the actors carry watertight Xenon flashlights, which could punch a strong beam through the depths and create dramatic contrast, as well as reveal surface details on the habitat and sunken spaceship. For his second motivation, Greenberg drew inspiration from the script and his personal observations of real-world lighting. He explains, "I decided that by the time the team reaches the habitat, the Navy would have already set up work-lights around the ship. I remembered seeing the way road construction crews had used these kinds of lights on the freeway — with two or three heads on a stand, aimed haphazardly because they didn't care where they were shining. I frequently asked Steve McGee to copy this idea, and not aim our lights precisely at the subject. Having these work-lights functioning as the main underwater lighting sources was very economical for the production, and convenient for me as well."

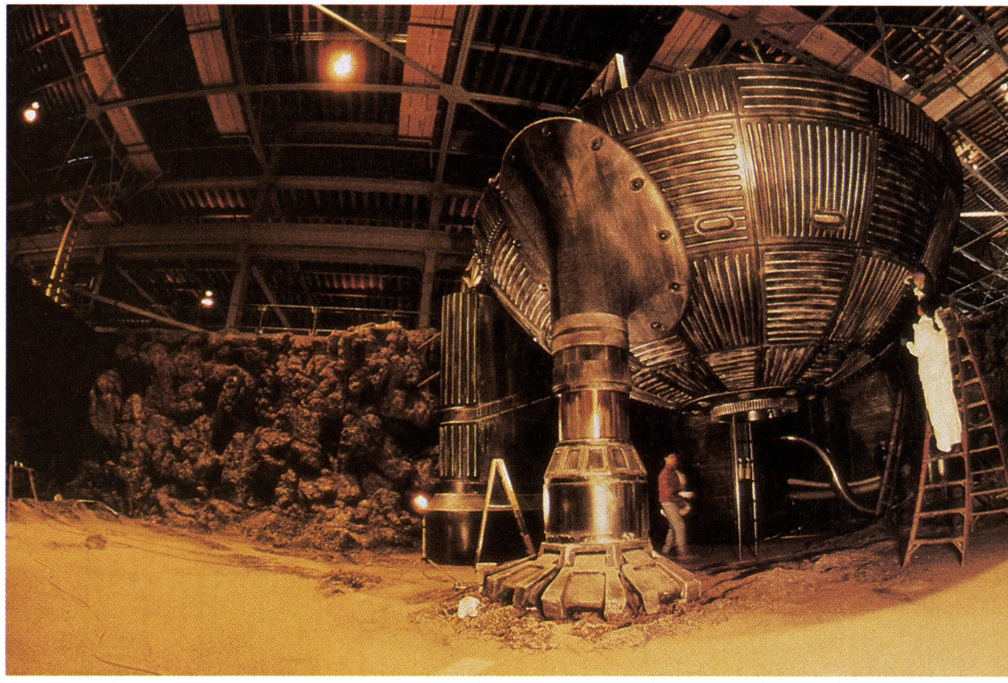
Expands McGee, "Adam designed the work-lights and had Pace Technology [located near San Francisco] make them especially for the show. The individual units were like an old-style 500-watt quartz light; they had a dome with a bulb in the middle and a little housing on the bottom that would fit in a stand. Adam also designed a cage that was put around them. When the fixtures were on underwater, the cage would break up all of the light so that it would then spear out into the water and create a lot of really interesting textures."

With this plan in place, Greenberg was confident that he had a clear photographic approach to the underwater scenes, which the second unit could continue under his supervision. He therefore returned to the surface and began the task of principal shooting within the tight confines of the four-story habitat set. "Filming in there was very difficult, and it was where 60 percent of the story took place," he submits. "I'd ask, 'How long will it take to remove a wall?' and they'd reply, 'It's not good to remove walls.' Then I'd ask, 'Still, how long to remove the wall?' 'Two hours!' How can you stop production for two hours? The habitat set was basically like a big submarine; there was virtually no room to hide any lights, so I had to light almost completely with practicals. In fact, I



shot almost the entire film without any normal movie lights."

To execute the main photography in the habitat, Greenberg and McGee devised a complex network of in-shot practicals to illuminate the sets. Explains Greenberg, "We ended up having to design and manufacture hundreds of light units, using MR-16s, MR-11s and fluorescents. I had these fixtures built so that they could produce several different variations of lighting in order to create different moods. There were mirrors inside the units that would direct a hard light down for one situation that I could later cover with white showcard to create a soft light for another situation. I was able to use the same units in many situations by just changing the reflective surface inside. I would control the lights on a dimmer and then change the reflective surface from white showcard to silver pebble or whatever was needed. The units also had shutters that allowed the light to come out, but blocked us from seeing the exact source on camera. However, because of the tremendous amounts of heat the practicals generated, we would



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Adding Mysterious Magic to Sphere

Carlos Arguello, visual effects supervisor for Cinesite Hollywood, guided the facility's participation in the production of *Sphere,* which included some 400 shots — 2-D compositing and retouching, and 3-D graphics. To begin their work, Arguello recalls, "The film's editor [Stu Linder] provided cut sequences of content adjacent to effects shots, so we could see how our work would plug in. We looked at the images in the Avid editing suite, and could see if we needed to expand a shot and how the colors and textures matched."

Cinesite used Silicon Graphics and also Macintosh computers to render the scenes in low-res 3-D as a previsualization tool for director Barry Levinson and visual effects supervisor Jeff Okun. Says Arguello, "A lot of the miniature shots were previsualized at Cinesite and approved by Barry before they were photographed."

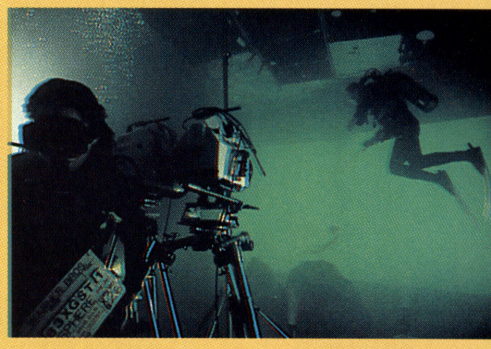
Three-dimensional computer-generated jellyfish figure prominently during one scene involving scientific team member Fletcher (portrayed by rap artist Queen Latifah). The creatures are a combination of real jellyfish filmed at the Monterey Bay Aquarium, puppets created by Chris Nelson at XFX, and CG images produced by Cinesite, whose staffers also created and amplified the underwater environment and composited all the elements. The visual references for the underwater scenes included footage from Jacques Cousteau and *National Geographic* documentaries.

Latifah was first filmed close-up in a shallow pool. After the film was digitized, the images of the actress were reduced and made smaller in-frame by an artist working with an SGI platform. Cinesite had a few teams of artists working on jellyfish animation, and another team executing compositing. Once the artists embarked upon the rendering, however, creating the jellyfish became an interactive process. Okun would bring Levinson video dailies, and provide feedback to Arguello.

"Barry approved the mood of the jellyfish, the number of them, and the purposefulness of the attack," says Arguello. "In effect, he directed the digital jellyfish. Barry would look at the scene and ask, 'Can you put two jellyfish in here?' or 'How about some bubbles coming up there?'" Generally, Levinson expressed himself in terms of what he wanted the audience to feel rather than what an effect should look like. "This needs to be a moment in the picture," he'd say, using words like "fear" and "excitement." However, any changes were generally subtle ones. Says Arguello, "We used the Kodak laser film recorder to transfer the finished images to Eastman EXR 5244 color intermediate film, which intercut smoothly with the live-action footage."

The underwater environment itself is virtual, augmented by miniatures, including the submarine which transports the humans scientists and the alien spaceship. The models were filmed with motion-control techniques, and then scanned into digital format. Cinesite artists made the models appear to travel through the depths with the insertion of real and CG bubbles, computer-generated layers of particle dust, and the diffusion of light sources in the underwater composite shots. "This approach gives you a lot of creative latitude," says Arguello. "In one scene Barry and Jeff wanted the audience to see the UFO far off in the distance. [Barry] had to decide how much to reveal in every shot. You couldn't do that in live-action, because it's too dark at 2,000 feet."

The numerous complex composites involved combinations of 3-D CG elements and matte paintings by the Cinesite matte department (headed by Charles Darby), miniatures and actors performing in front of greenscreen backgrounds. "We combined the use of different tools, rewrote motion tracking, and enhanced other software," says Arguello. "We used Alias for modeling and Softimage for animation, Renderman for rendering, and Cineon for compositing." In one scene, the scientists discover a "black box" that reveals the UFO's secrets — it displays a holographic image of the ship careening through space and into a black hole. Creating all of these effects shots was an additive process.



"We saw drawings provided by the production designer [Norman Reynolds] and storyboards," says Arguello. "We read the script and spoke with Barry and Jeff. Barry wanted the audience to see the hologram as a representation of reality."

Director of photography Adam Greenberg, ASC shot all of the visual effects shots against greenscreen backgrounds using the same Super 35, common-top-line format used for the live-action cinematography. One of Cinesite's responsibilities included ensuring that the reference marks — blue crosses positioned four feet apart to form a grid on the background screen for tracking purposes — were accurately placed. That provided the information Cinesite needed to account for camera move-

ment and the angle and direction of photography: this became somewhat of a roadmap for producing virtual environments underwater and onboard the UFO, and also for compositing shot elements into unified images.

In one particular scene, the crew are probing the darkened cargo bay with flashlights. The actors were filmed holding activated flashlights, but the beams themselves were lost against the greenscreen background. During filming, the glass faceplates of their helmets caught some green spill light reflected from the background. The digital artists first erased and replaced the green spill with reflections of images inside the cargo bay; then, computer-generated flashlight beams were tracked to the movements of the actors, revealing the submerged ship. Arguello adds, "The intensity of the flashlight beams increase and decrease based on their distance from the camera."

There are some more traditional shots, however, including the interior of a helicopter filmed on a stage. But even for these, Cinesite composited moving images of the exteriors into the windows. There's also film of an actual boat in real water. The matte department added digital boats to various scenes, using computer algorithms to work out the perspective based on the plane of the ocean with the real boat and the distance between the two. "We created a wake and added flags and people walking on the decks — little details as visual clues for the audience. The nature of our work has changed dramatically during the past several years. Just a few years ago, our role was doing repair work, removing wires and compositing images. Today, we are adding characters, geography and objects to scenes. The director can look at choices and make decisions about details. I feel like we are making a real creative contribution." — Bob Fisher

light a set and then immediately dim them on the controller board. Otherwise, we would have burned down the set, because there was no distance between the lights and the set walls."

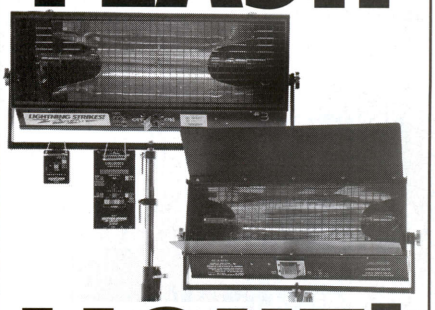
"I had a 'fixture' man, Brian Tilden, and his team of 12 other guys working just on those units," McGee adds. "We had more than 500 MR-16 lamps built into the sets, and about half a million feet of hard wire running to them through the walls. I always had at least one of the fixture guys who had rigged the sets with me at all times, because they knew where to go if there was a problem. They had computerized wiring diagrams of every floor. There were 25 different stations which controlled various sections of the lighting to the set.

"Our toplight fixtures consisted of a 650-watt quartz globe and an MR-16 shining through a section of steel grating. They created a very hard light, so every time the actors ran through these downward shafts you could see the grating shadows, which created a sense of motion while we filmed running and hallway shots. We also created pools of light with MR-16s fitted into little silver metal cups in the ceiling.

"Along the wall of the hallways," he continues, "we had little bayonet fixtures, similar to the turn-signal bulbs on an automobile, that we ran down the upper walls all the way around the hallways. They helped create depth whenever the camera looked down a hallway. We had about 600 12-volt linestras [incandescent, tube-shaped bulbs] all along the bottom of the walls. We ran them on 12-volt DC, knowing that there would be water filling up on the floor."

As surreal psychological conflicts begin to plague *Sphere*'s hapless team of scientists, the habitat loses power and a fire breaks out. This narrative element provided Greenberg with the opportunity to vary his lighting treatment for the towering

FLASH



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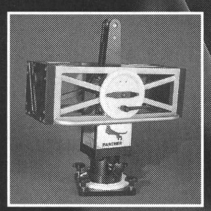

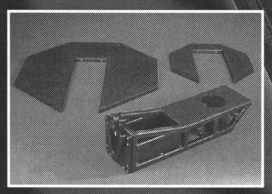

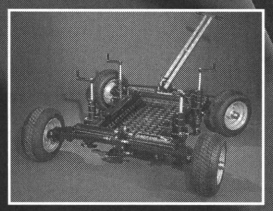

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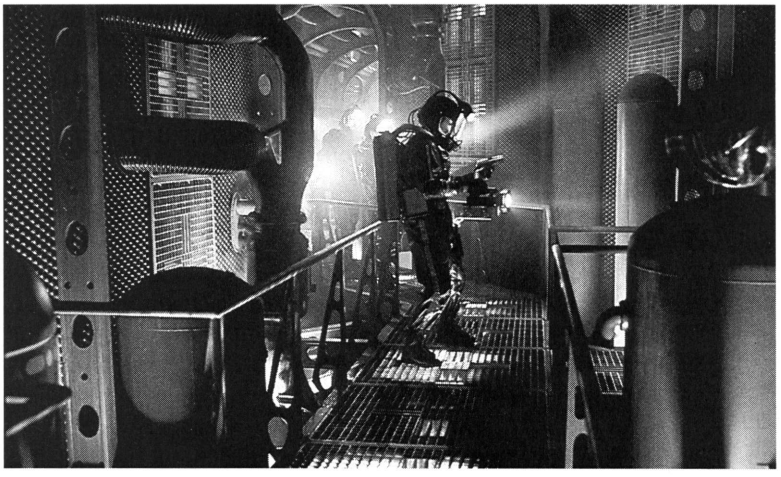
Voyage to the Bottom of the Sea

set. "In that situation I was able to use harsher and more limited lighting," says Greenberg. "I was then able to [shoot actors] in silhouette against hot smoke, to kill a lot of lights, shoot at a lower key, and make things more dramatic. However, smoke softens everything and tends to make it more beautiful, and I didn't want to make the film beautiful. I wanted to make it gutsy and dramatic, so the audience would feel as if they were really down there. Thankfully, Barry was very supportive of [that idea]. It's hard to do a film if the director isn't behind you."

"On location," he adds, "I'll sometimes see the layout of a given space and get a sense of how the blocking may go. But I also don't want to make the actors feel constricted, so my shooting style is a blend of what's comfortable for the actors and of finding a way to film the scene that is interesting in terms of its composition. You can't force composition at the expense of everything else, because that kind of approach can defeat the story or a performance. You have to find a way to shoot that lets those considerations coexist, and supports the work in terms of both the acting and the photography. Sometimes you say to yourself, 'Okay, this is what I'm going do in the scene — simple.' But sometimes when you're orchestrating five or six actors, you have to be able to work with them so that the rhythm of the performances will dictate the compositions."



Scientists explore the mysterious craft discovered at the bottom of the sea. Greenberg notes, "We kept the "alien" ship very dark, [and this still photo is much brighter than the timed print]. I didn't want to see too much; only when the actors showed their flashlights did you see glimpses of the sets. Of course, the actors themselves were always illuminated by their helmets."

"We had a number of difficulties while shooting within the habitat," adds Levinson. "It was very small space that was basically a self-contained unit — as opposed to a bunch of separate sets. I think that was good for the actors, because they got a sense of what it feels like [to be in that environment]. Having all of our spaces interconnected created a real sense of claustrophobia, but it also made it very hard to move around. We had to limit the number of people who could have access to the area where we were working. On a day-by-day basis, the habitat set just beat us up.

Supporting this idea, Greenberg notes, "I almost always shoot with more than one camera. I know that it's better for the photography if you shoot with one camera — but to make the best movie, it's often better to shoot with more than one. Most scenes on *Sphere* were shot with two

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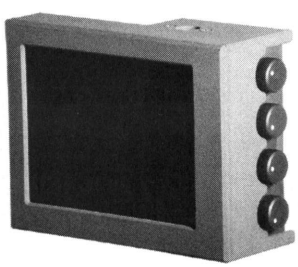

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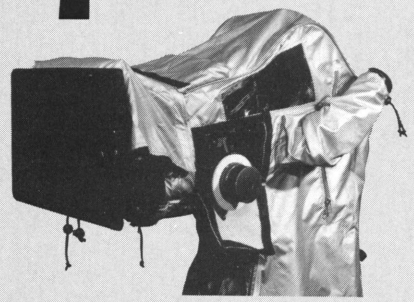

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Voyage to the Bottom of the Sea

cameras and sometimes three. Each camera angle may represent different moments in the story. While we were blocking a scene, I would find four or five different moments for each camera that told different stories in the same scene. In such tight spaces, that approach was very difficult for the operators, and difficult in terms of the lighting. The assistants were all using remote focusing because there was no room to stand next to the cameras.

"Barry is very visual, but he doesn't plan too much," the cinematographer adds. "His style has changed since I worked with him on *Toys*. Here, the camera was floating a lot, finding the shots. He gives the operators a lot of freedom, but he knows which moments he wants. The operators were very involved, and used their judgment and instinct to decide when to pan from one person to another. Barry's staging didn't necessarily have an A, B and C approach. Instead, he'd let the operator find C."

Levinson opines, "If you can get another camera in there without compromising your A-camera, then you're getting another piece that's effective. I have this theory that sometimes the camera that is in the 'wrong place' can, in many cases, become very interesting. There's something about fighting for the shot, as opposed to just being in the right place, that creates its own energy. I've always found that shooting with two cameras doesn't really compromise the look of the movie. Of course, sometimes you do have a shot that's so specifically designed for just one camera that there's no point in using another one."

The main shoot above water was photographed with Arriflex 535 A and B cameras, as well as two Moviecam SLs for the film's extensive handheld work. Scott Sakamoto was the show's A-camera/Steadicam operator, while Allen Easton served as B-camera operator. "We built several different camera rigs specifically for this show in order to deal with the small space," Greenberg says. "We used all kinds of things, like Pogocams and Eyemos. We also designed a tiny custom hothead for the Eyemo, which could go through small openings and still give the operators pan and tilt control. Andy Romanoff at Louma L.A. built it with a hothead normally used for video cameras, but it could support the Eyemo. The rig was small enough that we were able to attach it to a ladder that ran vertically through all three stories of the habitat. We used the ladder itself as tracks and had the hothead mounted to it, traveling along and following the actors as they climbed upwards. Key grip Chuck Bukey rigged it up, and the operators could follow the actors all the way up while using the pan and tilt functions."

Given the film's shooting conditions, Greenberg decided to utilize the Super 35 format to achieve a 2.35:1 widescreen image. "I shot in Super 35 for several reasons," the cinematographer explains. "One, there is a very limited amount of equipment to shoot underwater scenes in anamorphic. Second, since the sets were so small, we couldn't have focused close enough with the anamorphic lenses."

Greenberg shot almost all of the interiors in *Sphere* on Kodak's Vision 320T 5277. The lower-contrast stock, which replaced the discontinued EXR 5287, features increased underexposure latitude and an improved ability to capture shadow detail. The cinematographer recalls, "The stock had just come out at the time, so I tested it and really liked it. It's a strange stock, but if you learn how to work with it, it's very beautiful. All of the underwater sequences were shot with EXR 5293 because I wanted more contrast for those scenes. Also, any visual effects work — process shots or greenscreen — was done on 93 as well at the

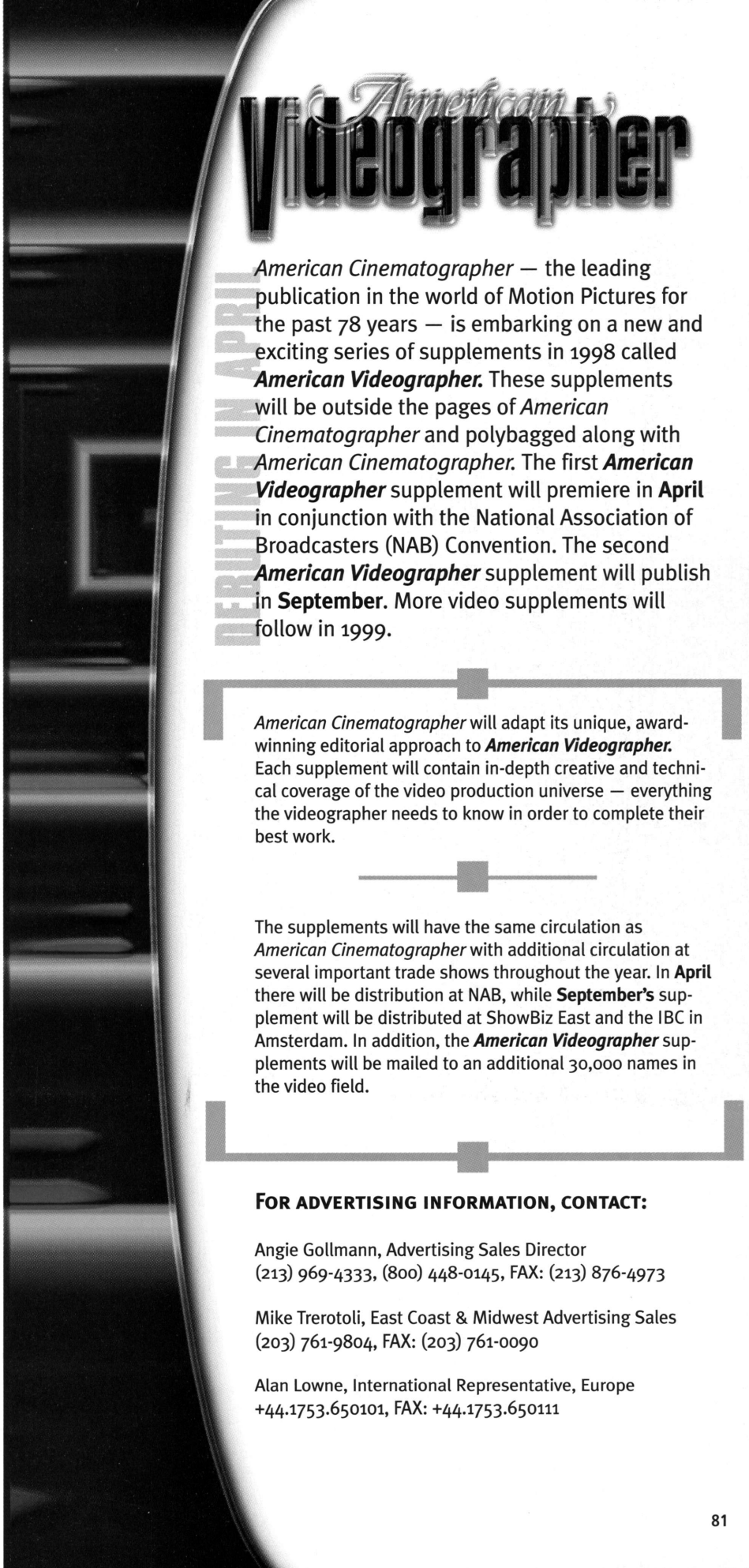
request of the effects house, Cinesite.

"During testing, I discovered that if I was printing the 5277 at around 32 or 33, the look was very soft — too soft for this film. But when I printed at 42 or 44, the stock was crisp, sharp and had good blacks. It was contrasty, but still had some softness to it. Therefore, I decided to keep my printing lights between 42 and 47 on the Vision 320T. If there were a few days where my printing lights would drop for some reason, the footage would really stand out. It was much softer and didn't have the same punch and contrast. The Vision 320T reminds me a little bit of Agfa stock. It takes hard light great, and you can overexpose it by six or seven stops or mix tungstens and daylight. I'd definitely use it again.

"We processed at Monaco Labs in San Francisco," he adds. "Every morning before going to the set, I would drive one hour to the lab so I could see the dailies. Of course, this meant longer hours for me — 12 hours of shooting, an hour drive to the lab and an hour back. I was generally working between 15 and 16 hours a day, but it worked out well for me; I was able to see the footage shot by both units, and then on the way back I could call Gary Capo and let him know what I liked and what worked. I was very much in control of all aspects of the photography."

The cinematographer adds that he has done some tests with bleach-bypass printing for *Sphere*, and reports that some prints may be finished using this process.

"I'd never done a film like *Sphere* before," Greenberg concludes. "I was constantly studying, learning, testing and watching films to prepare myself. That's the beautiful part of the film business: you're always dealing with something different that you can learn from." ■



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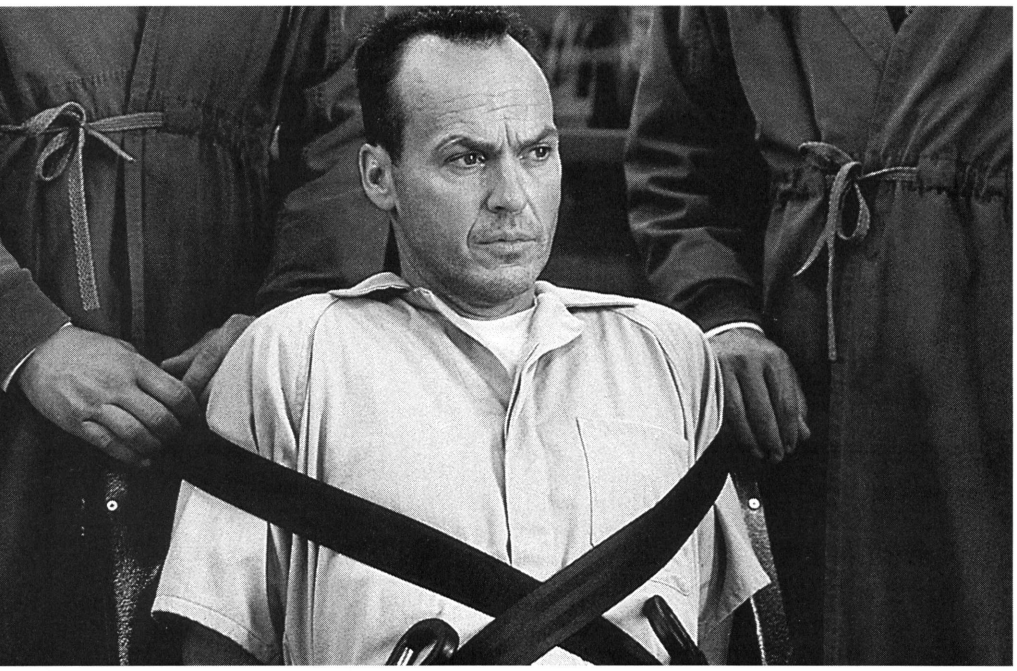


A deranged killer's marrow provokes a frantic pursuit in *Desperate Measures*, the fifth collaboration between director Barbet Schroeder and cinematographer Luciano Tovoli, ASC, AIC.

by George Turner

Photography by Merrick Morton

Though French director Barbet Schroeder and Italian cinematographer Luciano Tovoli, ASC, AIC first met in France, all of their collaborations thus far have been American productions: *Before and After, Kiss of Death, Reversal of Fortune* and *Single White Female.* Continuing in this tradition is their latest effort, *Desperate Measures*, which was photographed in Pittsburgh, San Francisco, and other parts of California.

The story focuses on San Francisco police officer Frank

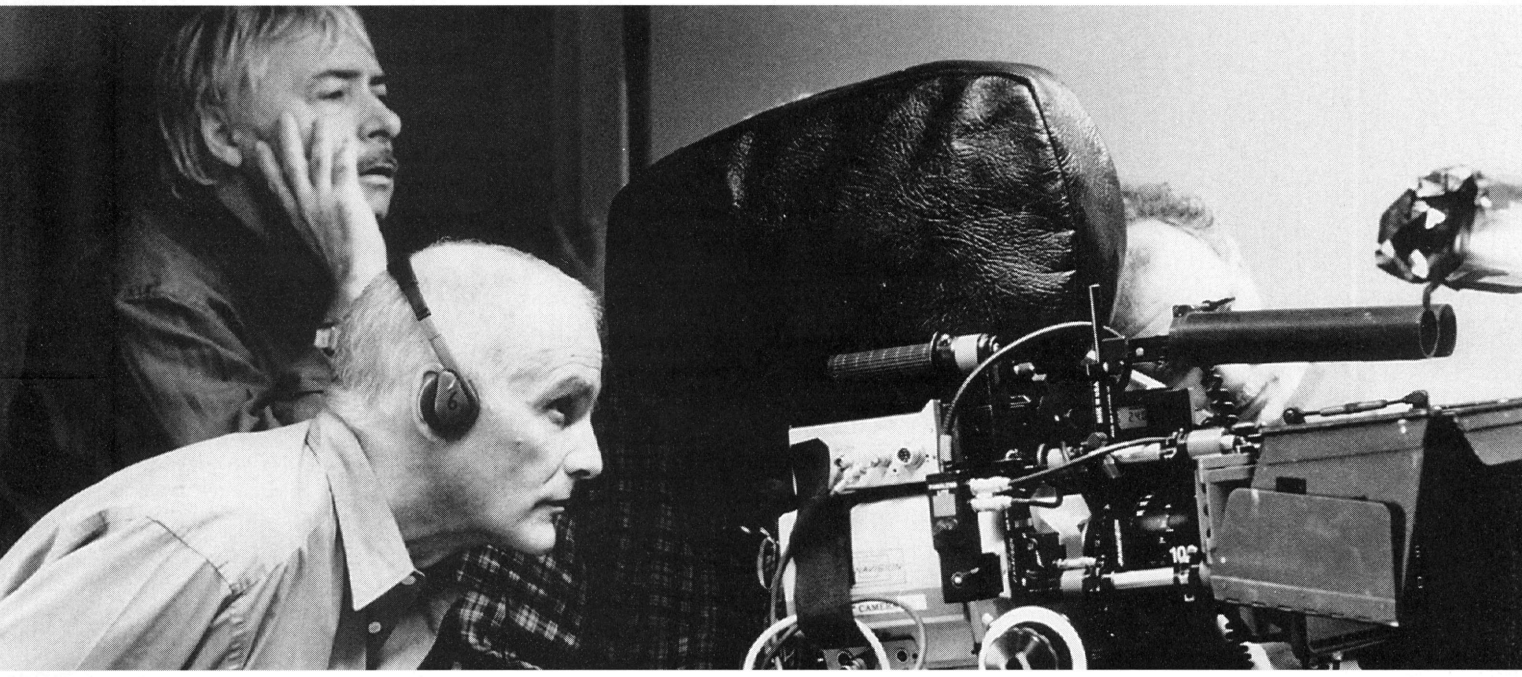
Connor (Andy Garcia), who is desperate to find a compatible bone marrow donor for his gravely ill son, Matt. The perfect DNA match is found in homicidal sociopath Peter McCabe (Michael Keaton), who is serving a life sentence in a maximum-security prison. When taken to the hospital for the transplant operation, McCabe effects an ingenious escape, leaving murderous mayhem in his wake. Connor must now try to find McCabe and keep him alive, for if the fugitive dies, Matt is also doomed.

Schroeder has been making widely acclaimed feature films and documentaries in Europe and the United States for the past 25 years. At the age of 22, the Frenchman founded his own production company, Les Films de Losange, but he admits that he has always had a special fondness for American movies: "Hollywood has been for cinema what Paris was for painting — it has the vitality of an art that is being made for the whole world. When you come here from somewhere else, you can take a fresh approach to old formulas."

Tovoli left his native Tuscany in 1956 to study at the famed Centro Sperimentale di Cinematografia in Rome. By the age of 24, he had worked as a director of photography in Rome and Paris; since 1960 he has photographed some 70 features, including *Bread and Chocolate*, *The Italian Journey*, *Les Fugitifs*, *The Last Woman*, *Splendor* and *Suspiria*. In his work with Schroeder, the cameraman has developed a signature look which marries classical and contemporary styles. According to Tovoli, he and Schroeder share a strong preference for sharp photographic images. "In the beginning, we decided to never use filters and to always opt for depth of field: it's more challenging. If you shoot full-open with a telephoto lens and the light in the foreground is okay, you don't have to work with the background because it will be destroyed by the lens. When you work for depth of field, you need more lights, because all the problems you don't solve will stay on the screen. I learned this in 1974 while working with Michelangelo Antonioni on *The Passenger*. Realism was a necessity, and he asked me to get the maximum depth of field. Antonioni's movies are all sharp and very clean, with no use of a telephoto lens or diffusion. On *Desperate Measures*, Barbet asked me to do the same. That approach forced me to use a lot of light, but thanks to my gaffer, Norm Glasser, the shoot was very smooth. We planned it very well; on each location we had a crew that lit the backgrounds, and then the first unit arrived and we only had to light the foreground and actors.

"I like strong photography," Tovoli emphasizes. "I like depth and I like to *see;* photography is a way to see more precisely than is possible with the naked eye. If you make a good picture, you will discover details that you may not have seen before. Many photographers like to use fog filters and a lot of softness, but I don't. When the designers make a lens, they work hard to give it the maximum contrast, sharpness and depth of field, so why change it? High contrast and high definition allow the spectator to sit down and enjoy the pleasures of discovery. If the image is sharp, there is a lot to discover on the screen."

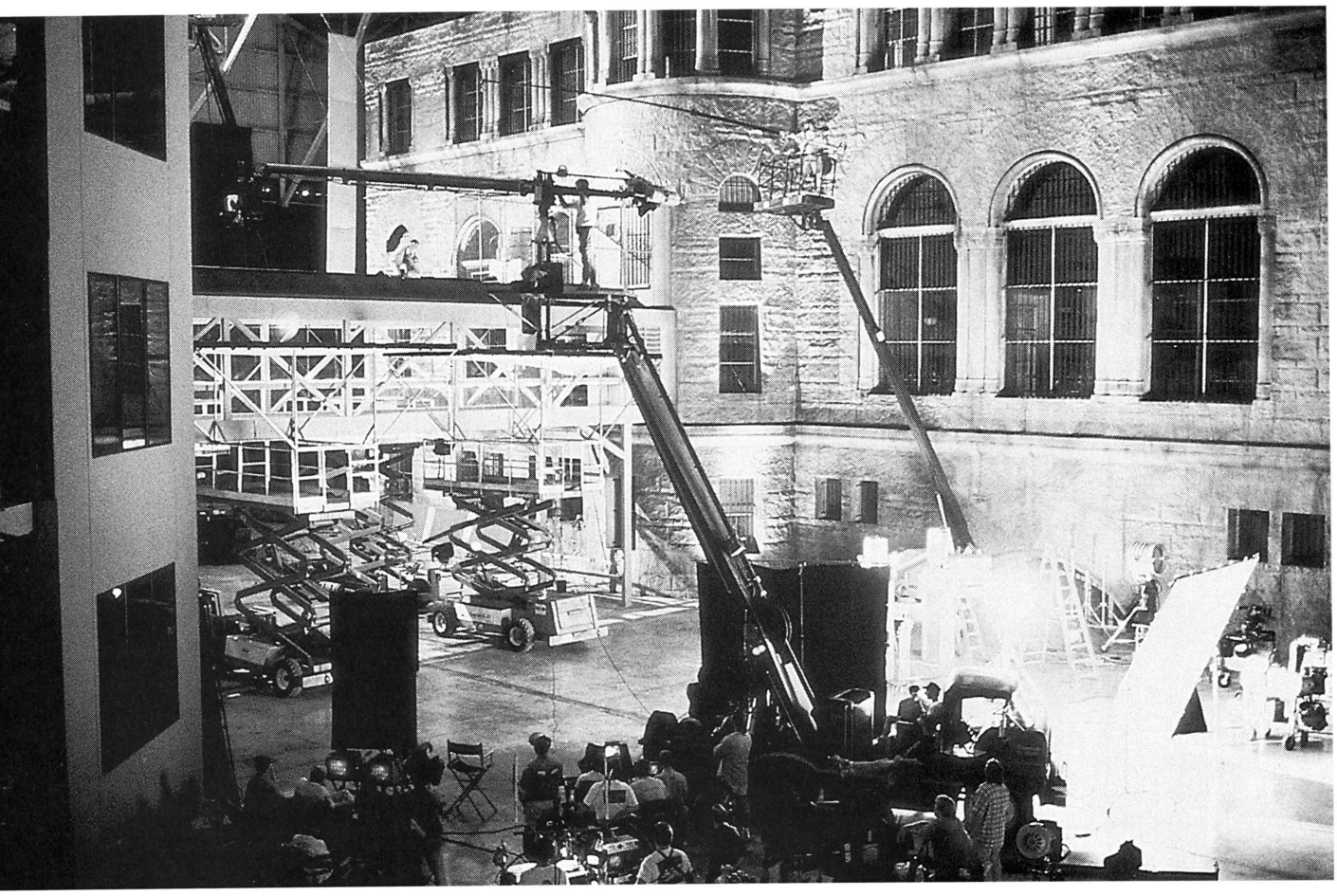
While Tovoli has a passion for



Tovoli (above and to left, with Schroeder) chose to depict sadistic killer McCabe (Michael Keaton, opposite) primarily in cool hues, in order to match his emotionless demeanor.

Photos courtesy of Mandalay Entertainment.

Bad to the Bone



Filming gets underway at the enormous hospital/prison set, which was built in a San Bernardino aircraft warehouse. The complexities involved in depicting the structure — spread out over various sets and locations — and the action demanded that Tovoli utilize a 3-D computer model of the site to previsualize shots.

cinematography, he has also long admired and learned much from the greats of still photography. "Although I never met them, my masters were Edward Weston, Ansel Adams and Henri Cartier-Bresson," the cinematographer attests. "I am astonished by their photographic abilities, and have always wanted to bring that quality to the screen. Photography and cinematography are two completely *different* jobs, but I am convinced — after 56 years of motion picture photography — that the basis is the same. As a cinematographer, I have huge cameras, a lot of assistants and a lot of lights; as a still photographer, if I see a nice scene in the street I can grab a camera and take the picture. [Cinematographers] do complete re-creations — we re-create the staging, the acting and the lines — but after a certain moment the re-creation becomes the reality. I unite with Barbet to capture a sort of reality, but our attitude also has to be that of a reporter: we're like Cartier-Bresson covering a fake war."

To properly create such imagery, the duo always make a point of setting aside the necessary time for preproduction. Says Tovoli, "We both agree that the usual preparation period allowed for the cinematographer is not enough. Producers usually bring the director of photography in at the last moment and never get his advice on such things as the choice of locations. Yet every element goes through the cinematographer's eyes. Barbet once told me, 'On all of the movies we do together, you will come in two or three months before shooting and we'll work together on every decision.'

"On *Desperate Measures*, I arrived two months before principal photography and began testing new materials. During prep, it's always possible that we may see new lenses and faster film stocks; we need to plan on [possibly using] these and other tools in advance, because it's too risky to test them when we're shooting. We shot *Desperate Measures* over the course of five months, but we didn't lose a minute [of production time], because we were properly prepared."

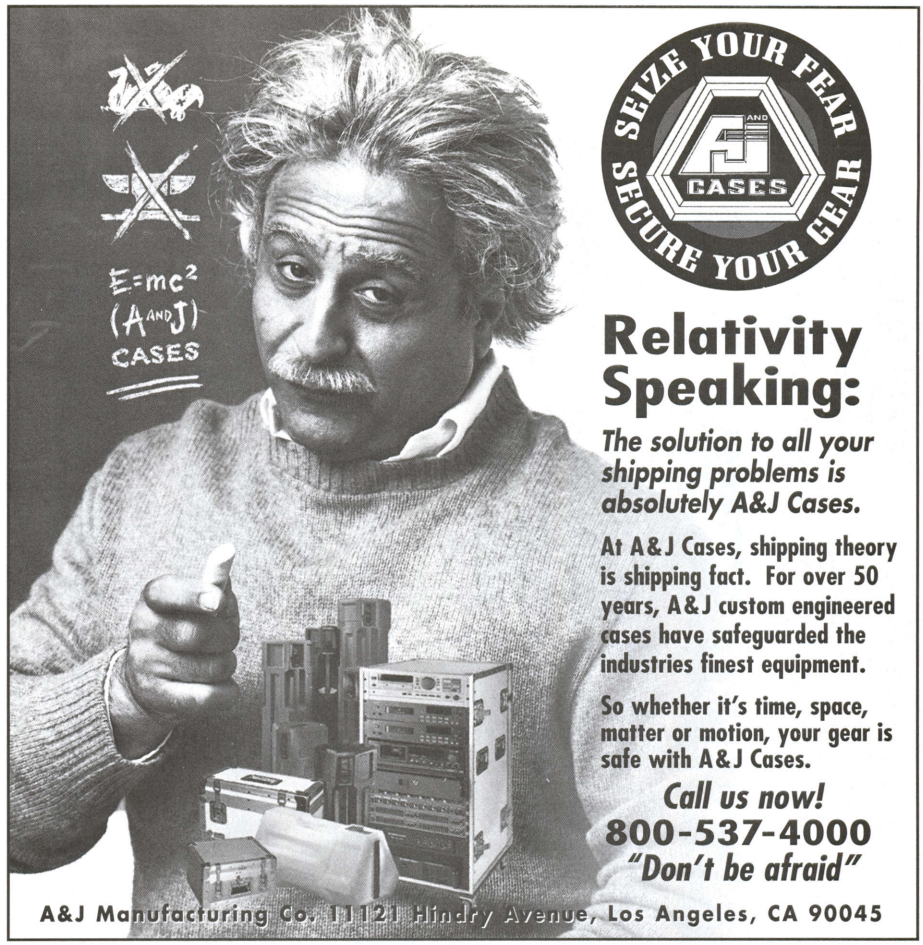
AC met with Schroeder, Tovoli and other crew members while *Desperate Measures* was still in production, filming within a former aircraft plant near the Southern California town of San Bernardino. During World War II, massive bombers were constructed in this gigantic building. The facility's enormous size satisfied production needs which would have gone unfulfilled by a studio soundstage or practical location. Fashioned in minute detail,

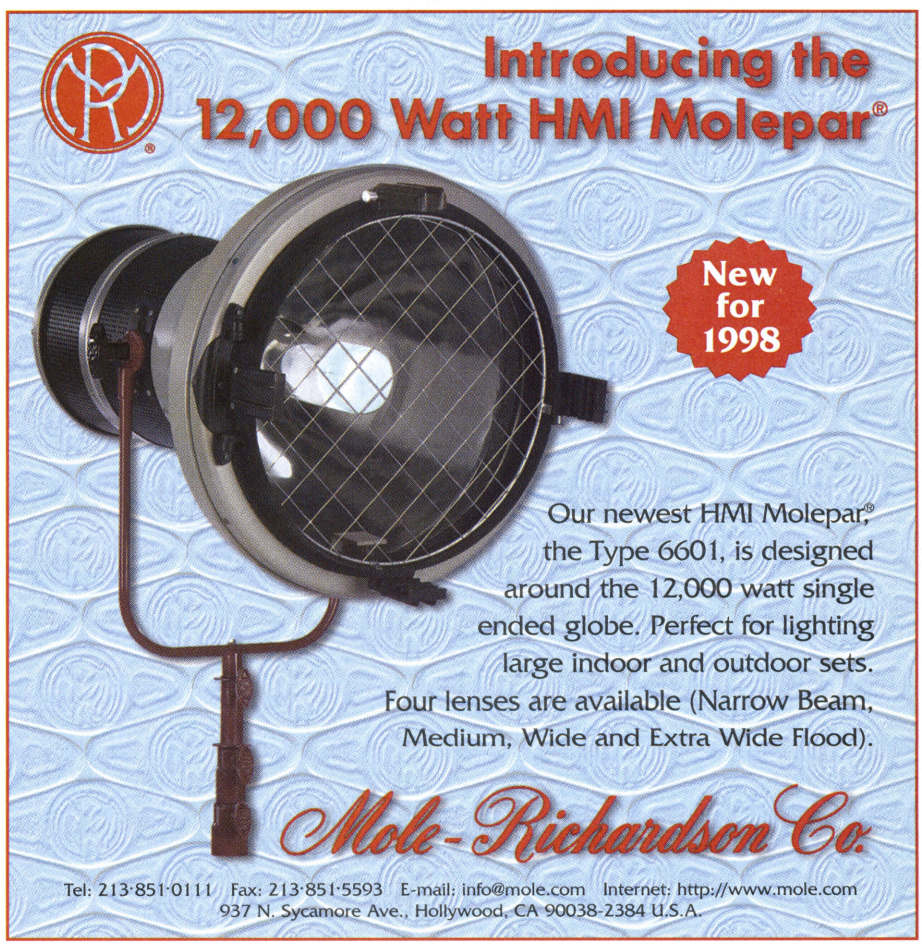
the set depicted portions of two large buildings, a modern hospital and an old, weatherbeaten granite prison. The structures were linked by a long elevated bridge which was eventually destroyed to suit the story's action.

Creating a complete image of the hospital and prison required that constructed exteriors be combined with several location exteriors, and that actual interiors be blended with studio settings. "All of this forces you to know what's happening in every shot ahead of time," Schroeder says. "This movie was like a minefield at every stage, because there were so many little details that had to fit together logically. The amount of information you have to process and piece together is totally amazing, and while the average audience would never think about three-quarters of the questions we ask ourselves at every single stage, *everybody* would notice if something was wrong.

"Not only did we use storyboards for this, but we also could visualize everything in 3-D," continues Schroeder, indicating a special on-set computer. "This way, we could know, if we put the camera at particular window using a certain lens, whether or not we could frame the whole walkway."

The technique Tovoli used to photograph actors perfroming on the roof of the walkway resulted from his extensive preplanning efforts with Schroeder. "[The studio] thought we couldn't have actors up there without safety lines," explains the cameraman. "Sony [Pictures] thought we'd need two cables on every single actor. Can you imagine 50 people on a walkway three feet wide and 20 feet above a concrete floor, each rigged with two cables? We tried that on the first day, and it was impossible. However, an idea had come to me in preproduction: build safety nets up close to the walkway, which we did. It worked fine." *[Ed. note: On film, the walkway appears 120 feet above the ground*





Bad to the Bone

Young Matt Connor's illness drives *Desperate Measures'* drama. Tovoli regularly used 2200°K light to warm the film's family element, which stands in contrast to the cold personification of evil.

with the help of visual effects work supervised by Richard Edlund, ASC.]

Preplanning, of course, also entailed the drafting of storyboards, but only for action scenes and visual effects. "We don't storyboard acting scenes because we believe the actors have the right to bring in their ideas," Tovoli maintains. "When we go on the set to rehearse the actors, we see how the blocking works out and what positions they tend to take. I then make drawings showing how we can cover the action from several camera positions and angles. After the A-camera operator finds the key movements, Barbet and I will select the angles that can be shot with the B-camera. By shooting with two cameras, you can cut the actor's movements very easily."

All of the movies on Tovoli's vast resumé have been captured on Eastman Kodak emulsions, and *Desperate Measures* hews to this tradition. "I really like the new Vision 500T [5279] stock because it gives me better play with shadows," the cinematographer notes. "It has no grain at all, so you can see night very brilliantly and with great depth. Now that the 500 ASA stock has no more grain than the slower films, they'll probably never make slow films again. I hope that one day they will come back with a sharp and contrasty 25 ASA film like Kodachrome; the current 50 ASA stock [EXR 5245] is less contrasty than the old 100-, 200- or 500-speed films."

Contrasting colors were used to delineate the film's opposing forces. Tovoli says he was inspired by

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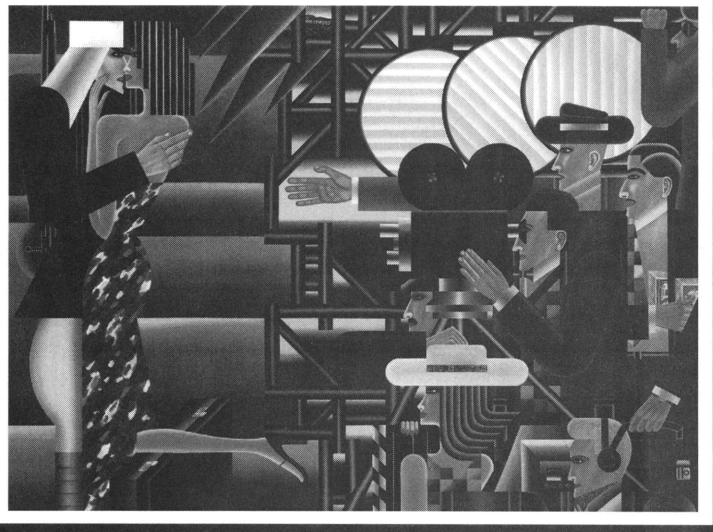

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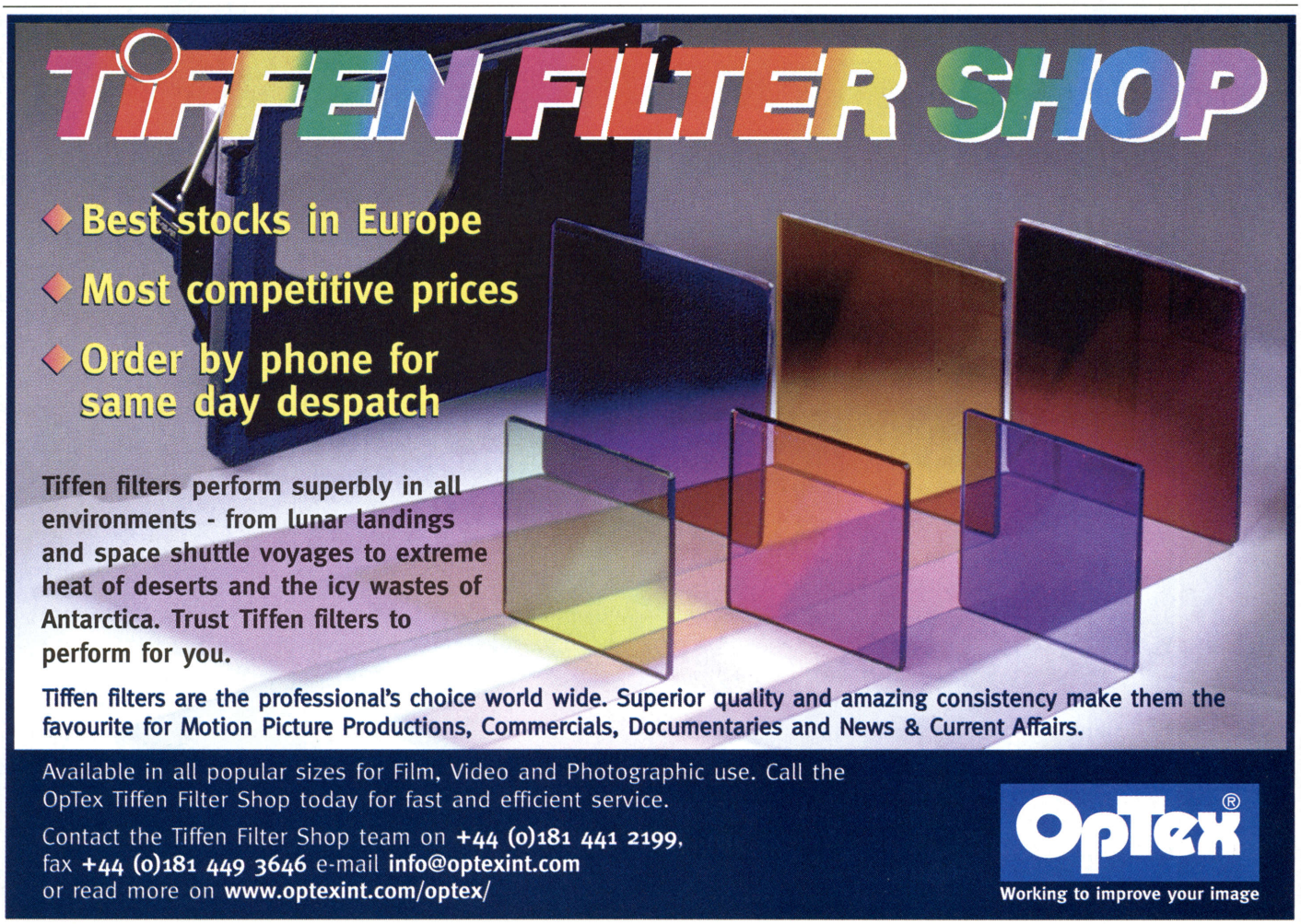
the work of English artist Francis Bacon; the painter mixed hues in a highly dramatic way, and often pitted warm tones against cool hues. Notes the cinematographer, "This film depicts a conflict between a desperate father and a man condemned to spend his life in a cell with the light on 24 hours a day. Caught up in the middle is the innocent little boy. For me, this meant a mixture of strong colors, so I didn't search for anything refined or soft. The style is strong and it can be disturbing, but for me, it corresponds to these contrasting states of desperation. The father is a 'warm' guy who seeks to maintain the warmth of his family. The criminal is intelligent and coldly clever. I therefore mixed the color temperatures: 2200°K for the family and 5000°K for the computer-like cool of the villain. These two elements dominate all of the visuals when the film grows more dramatic: it's a parable, so I made it bigger than reality."

A highlight of this larger-than-life aesthetic is an intense confrontation between Connor and McCabe in the prison interrogation room. "[Production designer] Geoffrey Kirkland planned the space as an expressionistic set with a very high ceiling, a wall which goes halfway around, and three long, thin windows," recalls Tovoli. "I decided to make silhouettes of the actors because Michael [Keaton] had come out of his dark cell and out into the sun. Then and there I improvised this technique of creating silhouettes against the white walls, playing [the scene] as a wider vision with the light I made for the whole set. I told the actors that the shadows became interesting, and asked them to take specific positions."

Tovoli insists that it is impossible to do an action-suspense film without a very strong visual element. "That's one of the reasons why those James Cagney films, like *White Heat* [shot by Sid Hickox, ASC], are so memorable. In the Forties, they used lighting to define an atmosphere.

"For nights, you can express your vision with light, and it can be an expressionistic vision or a romantic one," Tovoli explains. "*Desperate Measures* is a dramatic movie, so we went more expressionistic than romantic, but we had a mixture of the two. [To help create that feeling with contrasting sources,] we started our lighting from zero by shutting out all of the available light and building our illumination. First, I specifically used a lot of light bars against mirrors placed in specific parts of the location. Then, for the actors, I used studio Fresnels and a lot of Kino Flos."

Aside from the sets erected in the old aircraft plant in San Bernardino, most interiors for



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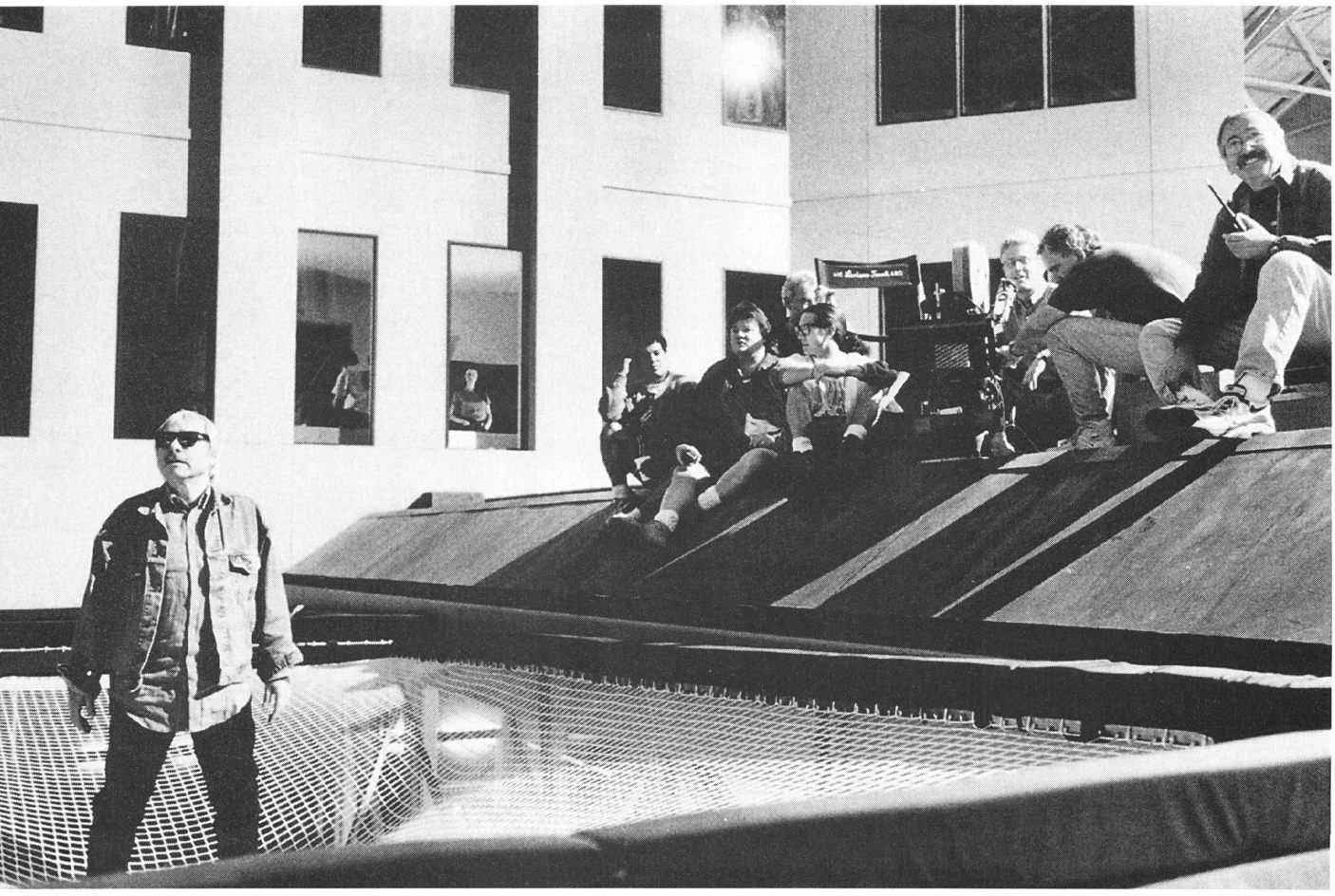

Tovoli tests the safety net strung along the bridge portion of the hospital set while his crew looks on.

Desperate Measures were shot at CBS, the former Republic Studios complex in Studio City. "There, we built a modern hospital with very low ceilings and a long corridor," Tovoli recalls. "Thanks to Geoffrey Kirkland's cooperation, we could have normal lighting and easily make the transformation to expressionistic lighting."

This expressive tone was supported by the camerawork; Tovoli often placed his Panaflex cameras at unusual, Germanic angles. "The credit sequence is like a festival of angles," the cinematographer comments. "The screen becomes almost vertical! Of course, we made moves as the story demanded, not just to make moves. We especially used a very light jib arm crane made of titanium. One of my men handed me a huge piece of the crane, and it felt like nothing — but it was still rigid, and not flexible at all! We could get it into several configurations quickly and easily, and we used the shortest configuration in small interiors." *[Ed. note: On the crosswalk set, for instance, the jib was mounted on top of a Chapman crane. The camera was then remote-controlled from the floor.]*

To complement Tovoli's shooting style, zoom lenses were ruled out in favor of primes. Most of the photography on *Desperate Measures* was accomplished with 35mm, 27mm, and, for very large setups, 17mm lenses. "The usual tools for second-unit action sequences are longer lenses, but we told [our second unit] to use 50mm and 35mm lenses," the cinematographer says.

Schroeder and Tovoli avoided the currently fashionable post-MTV pyrotechnics that emphasize activity instead of action. "It's much harder to do a *constructed* shot, with depth of field, than a multitude of little, out-of-focus shots that only relate to each other when they are linked by music," the director observes. Schroeder also holds that one's editing choice can heavily influence the effectiveness of individual shot, particular one that's kinetically charged. "You can't get into a character if the editing is too abrupt. You always have to have a little time to understand what is happening. An exciting action sequence is one in which you understand what is at stake, and in which you understand the geography of the scene, as well as the psychology and goals of the characters. If all of those elements are clear on the screen, it's much more exciting."

When principal photography wrapped, some opticals, digital imaging and matte shots were left to be done. Chosen to execute these special effects were Richard Edlund,

ASC and his colleagues at the now-closed Boss Film Studios in Marina Del Rey. "The Boss Film people were really fantastic." Tovoli reports. "Quite often, people who work with new technologies believe they're a little like gods; they set rules and they force you to stay within those rules. With Richard, the rules have to be respected, but he allowed us to be creative first and *then* find the way to solve the problem."

During some on-set downtime, Tovoli peers upward to observe several actors lounging in the safety nets near the hospital walkway. "This is our 97th day of shooting, which is a long schedule, but this is one of the most pleasant movies I have made," he attests. "The atmosphere has been so nice, thanks to Barbet — the director sets the tone — and to all the actors. The crew was the best I've ever encountered. In addition to the gaffer, Norm Glasser, I owe special thanks to my operator, Monty Rowan; the dolly grip and crane operator, Arthur Blum; and to grip Gary Beaird and focus pullers Bob Hall and David J. Harder."

Assessing the results of his photographic efforts on the show, Tovoli submits, "A year from now — after I do another movie in New York, Rome or Paris — I'll go to see *Desperate Measures* and *then* I'll understand what I've done. Right now, it is impossible for me; I have some ideas, but I can't tell yet if my course was in the right direction."

Tovoli maintains that his greatest desire is to see more people recognize the importance of the cinematographer to the filmmaking process. "All over Europe, they are celebrating the centennial of the creation of cinematography," he muses. "This centennial is for the camerapeople. Let the next centennial be for directors, and then the next one for the writers. This celebration is for the guy who built a camera, made moving pictures and showed them to audiences." ■

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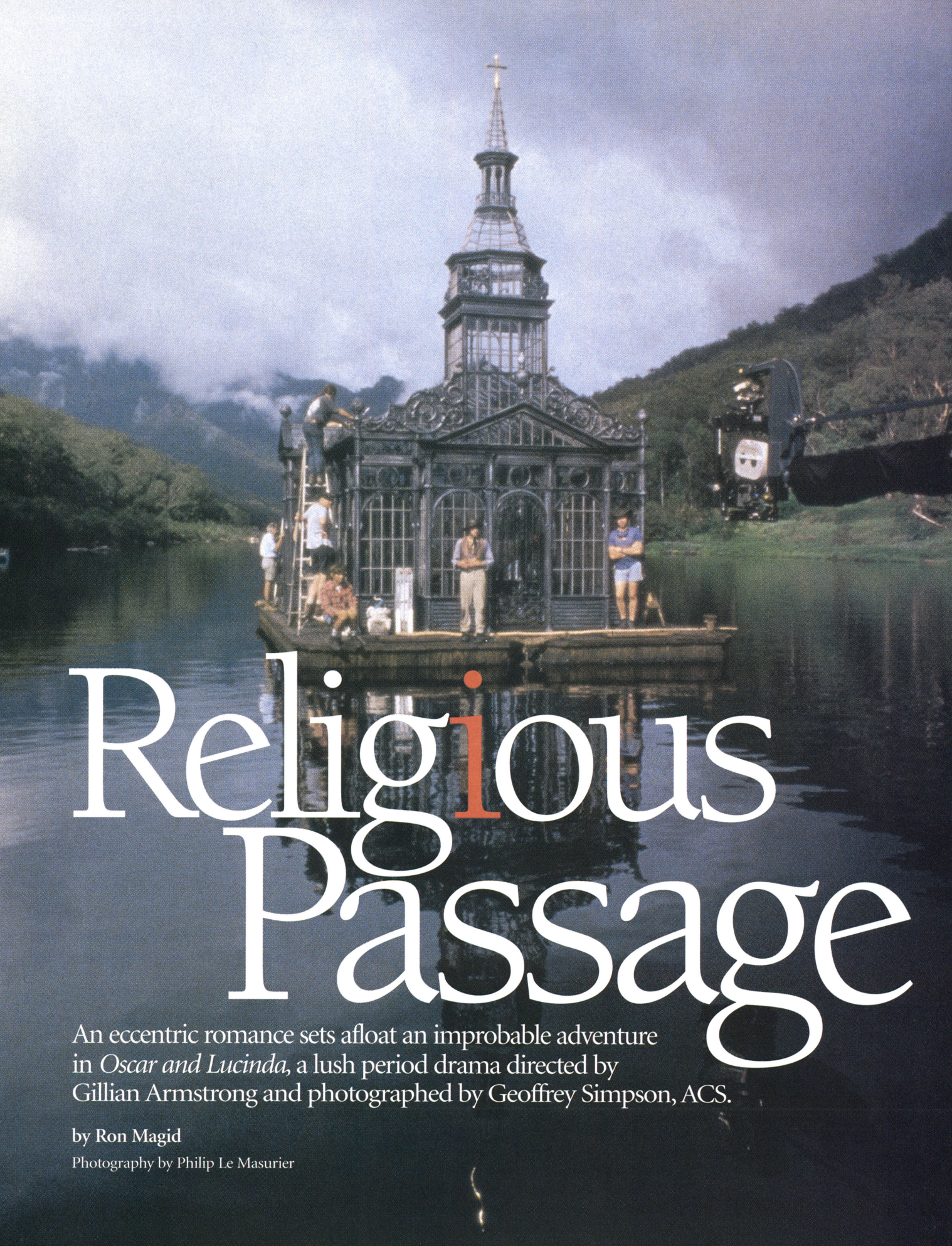

Religious Passage

An eccentric romance sets afloat an improbable adventure in *Oscar and Lucinda*, a lush period drama directed by Gillian Armstrong and photographed by Geoffrey Simpson, ACS.

by Ron Magid

Photography by Philip Le Masurier

Even for the Land Down Under, it was an amazing scene: a huge glass church, mounted on a wooden barge, wending its way down the Mann River in Jackadgery, Australia, surrounded by hooded men and women wearing dark robes. "It was my own little *Fitzcarraldo*," Australian director Gillian Armstrong says with a laugh. The reference, of course, is to Werner Herzog's infamous tale of obsession, in which a massive boat is hauled over a South American mountain.

Armstrong (*My Brilliant Career, Mrs. Soffel*) had wanted to adapt Peter Carey's epic novel *Oscar and Lucinda* when she read it in galley form more than a decade ago. The story concerns a pair of inveterate gamblers: a wayward seminarian (Ralph Fiennes) who can't resist a bet, and an ambitious but impractical businesswoman (Cate Blanchett) whose dream is to buy a glassworks factory. The pair's lives eventually converge in an unlikely but touching romance that leads them to an epic expression of religious conviction.

The success of Armstrong's 1994 film version of Louisa May Alcott's *Little Women* finally gave her the freedom to tackle this ambitious art-house project, but translating Carey's dark tale demanded a different kind of religious fervor — and a lot of guts. *Oscar and Lucinda* is certainly not the most commercial step Armstrong could have taken after *Little Women*. "There were many who advised me not to do it, which I considered madness," the feisty Armstrong states. Like her titular characters (played with gusto by Fiennes and newcomer Blanchett), she gambled everything to bring her vision to the screen. "There's a reason you stick with a story and gather together a whole group of people who love it for the same reasons — despite the hazards, the floods, the thunder and the lightning."

Indeed, the gods seemed to be fighting the project every step of the way, turning the production of *Oscar and Lucinda* into an epic story of its own. Carey's unusual tale compelled top craftspeople in the Australian film industry to join Armstrong on her quest. Topping this list were director of photography Geoffrey Simpson, ASC; production designer Luciana Arrighi and costume designer Janet Patterson.

Simpson, riding high on the success of *Shine* [see *AC* April '96] and *Little Women*, resisted offers from American filmmakers in order to join Armstrong in Australia. The duo had also previously worked together on *The Last Days of Chez Nous*, and both were eager to test the boundaries of period filmmaking. "We wanted *Oscar and Lucinda* to have a boldness, a strength of both composition and color, because it's not a pretty period film," Armstrong asserts. "We were very conscious of making it quite crisp and bold, and keeping the blacks very black."

That crispness can be seen in every image, thanks to a certain cold blue cast to the light, which imparts a steeliness to even the warmer scenes. Simpson relates, "It was certainly a huge departure from *Little Women*, which was a more classic-looking period film with a really warm lamplit look all the way through. On this one, Gill wanted to go away from that direction and try for a bolder, more contemporary-looking film with a sort of industrial, gutsy edge. We had discussions early on, sitting around a large table with heaps of reference books, throwing ideas, photographs and different painters into the pot."

Oscar and Lucinda's first scenes were shot on a barren beach in Cornwall, England, where the infant Oscar chases after his puritanical father, who charges into the sea as he grieves over his wife's death. Thanks to Simpson's imaginative camerawork, the sand appears as a stunning combination of china white with damp patches of chilly pastel blue.

Opposite: The glorious glass cathedral floats down the the Mann River in Jackadgery, Australia. Made of Perspex, the structure was exceptionally difficult to photograph, as reflections of the camera and crew had to be avoided. Above: Oscar and Lucinda (Ralph Fiennes and Cate Blanchett) make an unusual coupling. He can't resist a bet and she dreams of buying a glassworks factory.

Photos courtesy of Fox Searchlight.

Religious Passage

Oscar and Lucinda lounge in the Australian sun. Faced with atypical overcast skies while shooting in his homeland, cinematographer Geoffrey Simpson, ACS had to utilize faster stocks and replicate a sunny look.

"The ideal would have been to shoot in early morning light," Simpson says. "Actually, there's quite a story behind that. We surveyed this deserted beach three months earlier, but when we came back to shoot, England was in the midst of an extended Indian summer, and the beach was just filled with people! The place was packed with surfers and beach balls, and here we were looking for the lonely Cornwall beach. The first assistant director said, 'Guys, you're having me on — you want me to clear the beach?' We had to enlist lifeguards as assistant directors, but by the time the beach was emptied two hours later, it had actually turned bright and sunny."

So much for early-morning light. "We used an 81EF or an 81A filter just to cool the sun down slightly," Simpson says. "I wanted to keep a fairly solid, consistent negative; I knew we'd be shooting the scene throughout the entire day, where the light was going to be normal daylight color temperature. I didn't want to go too far with the negative in case we got caught with matching stuff later on. I knew there would be an opportunity to time in more blue in the lab. I wasn't able to be on hand for most of the timing, but Gill did a lot of work with Arthur Cambridge, the timer at the lab in Sydney. He did *Shine* and all of the other films I've done, as well as many for John Seale [ASC, ACS] and Don McAlpine [ASC, ACS]. In fact, Arthur recently received a Lifetime Achievement Award from the ACS. He and Gill went through the film, which was just a one-light workprint; the blue had a lot to do with Arthur really pushing it. As John Seale says, 'Thank God for Kodak and Arthur Cambridge.'"

"Because this was a terribly complicated shoot, my first assistant used to say that we were doing a 'period road movie.'"
— Gillian Armstrong

To convey the story's epic scope, Armstrong insisted that *Oscar and Lucinda* be filmed in 2.35:1 anamorphic. "We used two Panaflex GIIs with E-series lenses," Simpson notes. "Bill Ross at Samuelson's in Sydney was fantastic in bringing all the equipment together from London and Los Angeles. He managed to get us a reasonable E-series lens package: 35mm, 40mm, 50mm, 75mm, 155mm and 180mm primes, plus 50-500mm and 40-200mm zooms. We also had a couple of C-series lenses for Steadicam work. We tended to rely on our primes, and we didn't do any true, moving zoom shots. But when we were shooting some of our bigger exterior scenes, we'd have two cameras grabbing stuff, and we did use the zooms [for convenience]."

Despite the fact that all of Simpson's previous features were shot in the spherical format, he and his crew quickly mastered the vagaries of anamorphic — after a short trip to the school of hard knocks. "My only anamorphic experience, really, was doing second unit on *The Road Warrior*," Simpson admits, recalling his experience with cinematographer Dean Semler, ACS. "So this was really my first time using anamorphic, as it was for Gill and our focus puller, first assistant Sally Eccelston, who managed a lot of fantastic 100mm close-ups tracking in on faces. I learned a couple of really interesting lessons at some of the locations in England. The little cottage where Oscar was raised by his father was a great spot; the windows soared out onto the cliff and the bay there. I suppose I was thinking more in spherical terms when I said, 'Yes, it's going to be tight, but we can just shoot here.' We were doing a scene in which these two maids give young Oscar a Christmas cake, and the room was tiny: I could touch the ceiling with my hand and almost reach from wall to wall. We had the wide lens on to get the two-shot of the maids looking at Oscar, so the camera and everybody was jammed against one side and all the furniture

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was pulled out; we were really crammed together, and we had to get a bit of light in there as well. In hindsight, I think it would have probably been better to use a set — it would have given us more flexibility to move the camera and get back a bit. One of the big lessons for me, in making the jump from spherical to anamorphic, was to allow myself a bit more room on some of those very small locations. The reality of using anamorphic lenses — having that extra room in the frame and needing to get a decent stop — made our interior location shoots really tight and very compromising. We tried to shoot all the interiors at about a T4, because of the usual problems with depth of field inherent to the anamorphic format."

Armstrong and Simpson had planned to use the natural climates of their locations to contrast the coldness of Oscar's England with the warmth of Lucinda's Australia, but reality once again diverged from expectation. "In preproduction, we said, 'Okay, we'll have this wonderful contrast: England has overcast skies and a gloomy look, and when we get to Australia, we'll have the bright Australian light," Simpson recalls. "Bizarrely enough, we actually got the opposite. We had a wonderful summer in England, but in Australia we were fighting the clouds. Lightwise, for a largely location-shot picture, we just didn't have any luck. We had to work hard to make it all happen."

Simpson had intended to sell the contrast via his choice of film stocks: "I hoped to use a bit of Kodak's [EXR] 5245 in Australia for the really bright, zappy sun conditions, but we often didn't get that consistency of sunlight. I ended up using Vision 200T [5274] for the exteriors. We used the Vision 500T [5279] for nearly all the interiors and night shoots, which was great. I'd never used it before. I'd been using 5298, but I wanted to explore the

Vision stock, so I did some tests with it in London, and I liked it. Some of the contrast between the countries [in terms of light] happened anyway, but a lot of that was done afterwards, in the lab."

Beyond going halfway around the globe to England and back to Australia, *Oscar and Lucinda* was shot in so many diverse locations that Armstrong's company was rarely in any one place for long. The logistics threatened to wreak havoc with Simpson's cinematography. "Our photography was a patchwork, just like the book," Simpson observes. "Peter Carey's novel is a pastiche that strings the stories of Oscar and Lucinda together in a huge number of locations. We had a 70-day shoot with probably close to 50 locations, so there was massive movement. We'd be in one location, then it was 'Okay, load the trucks, pack, wrap, we're moving out.' And we'd be somewhere totally new the next day. The important thing was to produce a consistent, safe negative that could be tweaked slightly afterwards in the grading process, given that we had so many different lighting conditions. In Australia, we had one of the worst storms on record and had to pick up shots for the wagon expedition sequence in another location; I didn't want to be mucking around with filters too much."

David Lean, one of Armstrong's favorite directors, once observed, "Filmmaking is the last of the great traveling circuses." She agrees. "Because this was a terribly complicated shoot, my first assistant used to say that we were doing a 'period road movie.' We were really never anywhere for more than three days — except at the end of the shoot, when we were on the river. Even in Sydney, everything was in a different period house, so every day we were in a new place that was being dressed."

Adds Simpson, "We were certainly a circus, and we traveled a lot. It was a big picture with a lot of loca-

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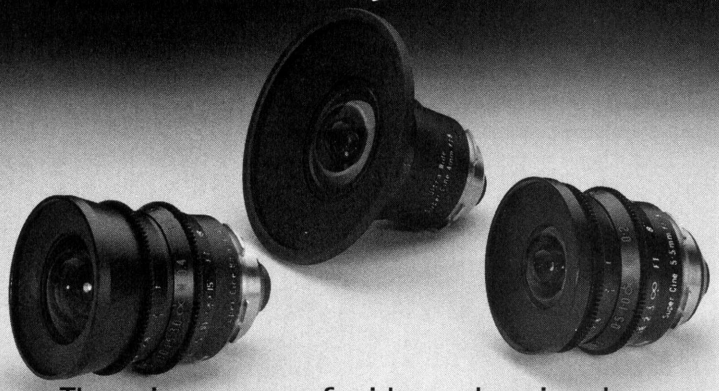

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tions. When we were in London and mainly in Australia, we used National Trust and National Heritage buildings. They were beautiful architectural pieces with wonderful furniture, so we had to be very respectful. In most cases, we were not allowed to paint walls or rig wall-stretchers or any of the normal things you'd do in practical locations. We also had this group in many of the National Trust places that I called 'the Furniture Fascists,' who glowered at us any time we came near one of their pieces. Their job was to protect things, of course, but it made our work very difficult. We had wonderful scenes where we were rigging lights off huge scaffolding poles, getting very close to incredibly expensive chandeliers. These furniture guys were dying, because they were afraid we were going to break things. We didn't, though; we were very good."

The wayward paths of Oscar and Lucinda finally cross aboard a regal sailing ship, the *Leviathan,* when Lucinda asks the young seminarian to pray for her. Oscar braves his all-consuming fear of water to make the journey up to her stateroom, and is rewarded when Lucinda confesses that she needs absolution for her unquenchable addiction to gambling. Oscar is overjoyed to find a fellow bettor and kindred spirit; throwing salvation to the wind, the two soulmates immediately crack open a deck of cards. This funny, touching scene is enhanced by Simpson's decision to render it in contrasting colors, juxtapositioning the cool blue of the stateroom walls with warm lamplight. He notes, "One of the themes of the film is Oscar's fear of water, so the color blue was a very strong thematic element in Luciana Arrighi's sets. We didn't want to muck it up by adding too warm a light, but we did want to suggest that the characters were heading toward the warmth of Australia. In *Little Women,* we had background colors that really worked with warm light, and we pushed the warmth a lot; here, we were going for

"The important thing was to produce a consistent, safe negative that could be tweaked slightly afterwards in the grading process, given that we had so many different lighting conditions... I didn't want to be mucking around with filters too much."
— Geoffrey Simpson, ACS

a bolder, more contemporary look, and we used purer colors in the background. Too much warmth would've muddied them. On *Little Women*, I used a package of half CTO and a bit of yellow and some dimming to create warmth, whereas on *Oscar and Lucinda* I used a tungsten package and balanced the color temperature between the warmth of the 216 diffusion gel and a slight dimming of the lights. We sometimes double-framed the lights with 216 and 250 to make them even softer. So the difference between *Oscar and Lucinda* and *Little Women* was quite radical in terms of how much warmth we put on the light sources. The scene on the ship is a very funny and pivotal one, where these two characters connect through the passion of their addiction, and their love for each other begins. I really responded to it."

Fiennes, Blanchett and director Gillian Armstrong (left) on location.

Further complicating Simpson and Armstrong's task was the fact that this pivotal dramatic scene, although far from an action setpiece, was loaded with movement. As Oscar and Lucinda giddily gamble, the sea grows wilder, tossing the ship around like a bathtub toy. "That's all there in Carey's book; those are the scenes you wonder if you're ever going to pull off," Armstrong admits. "We'd used that as an audition scene, so when the day came to shoot it, the poor actors had tested with it and Ralph had read it with other girls we

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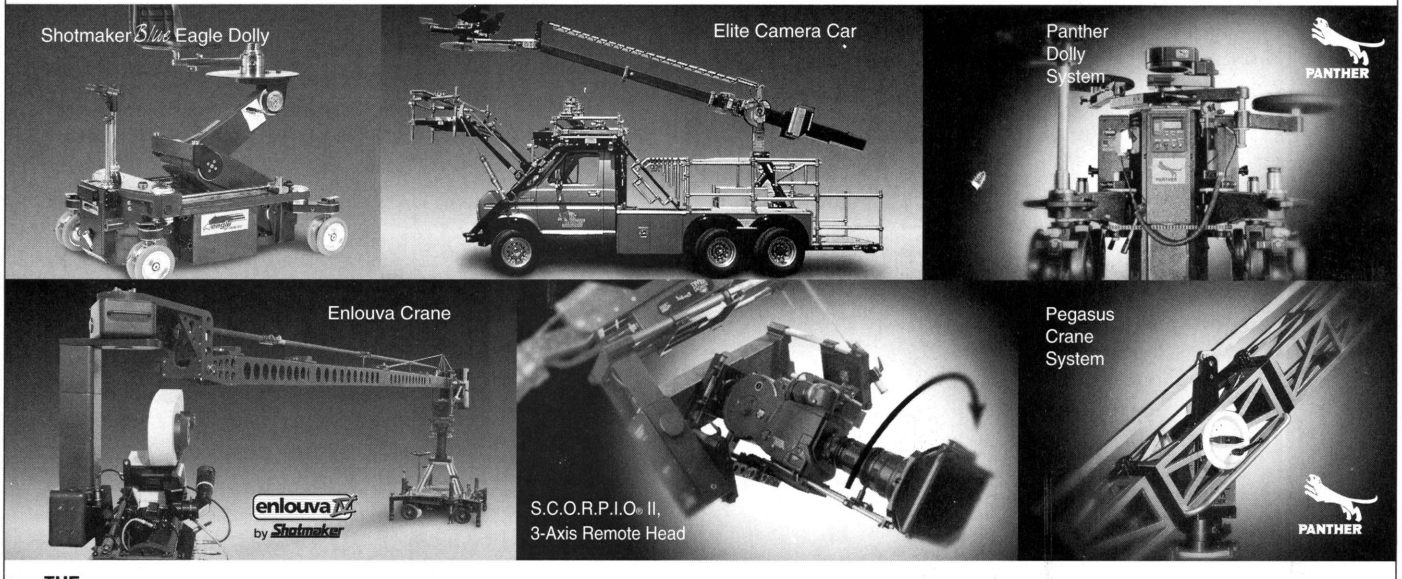

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had auditioned. Everyone was nervous about doing it for real; we were worrying, 'Oh God, this is it. Will we ever get the same magic?' Ultimately, though, Ralph and Cate gave fantastic performances."

The "seasick" effect was achieved by building the stateroom set on a gimbal, which enabled it to rock and roll violently at a nod from the director. "That was one of our few sets," Simpson says. "Ray Brown, our key grip, brought his big crane in with a camera remote system so the camera could be locked off and the set would rock around it. We had some very soft ambient light locked off to a grid above, and we also had specific lights directly on the set that were locked down so they wouldn't rattle and roll as they rocked with the set. It was all quite tricky, because the degree of arc got quite radical. We'd stand back from it and look at what we'd created, and it was just bizarre; we had all of the equipment and lights hanging off poles and scaffolding, and the whole thing looked like a funride gone mad. It was extraordinary."

That chance meeting between the two gamblers results in a life-or-death wager when Oscar proposes that Lucinda's glassworks should produce a glass church, which he will shepherd over land and water from Sydney to its ultimate destination: the small town of Bellingham. During this fateful voyage, the film's themes of water and glass, which Armstrong has so delicately woven into her tale by showing off Oscar's collection of buttons and Lucinda's paperweights, take center stage. "Those visual metaphors of water and glass are written into the original story; they're not something we've added," Armstrong states. "From the moment I began working on the film, the first question anyone asked me was, 'How are you going to do the church?' That was such a key image in the book that we knew it was one of those things we were obliged to live up to."

Transforming the glass church from an idea in Carey's novel into something that could be photographed was a daunting task. "During preproduction, we had all sorts of discussions about special effects and CGI and models and mattes," Armstrong relates. "As it turned out, all of the best computer animation people said that doing mattes with glass and water is the hardest thing of all, so they advised us that we really were best off actually shooting it for real."

But shooting for real created its own set of demands: not only did the locations for the climactic voyage have to be scenic, the river had to be able to accommodate the massive church and barge, plus the camera boat. "Oh God, you could almost write a book on the story of us getting to photograph that thing," Simpson says, groaning. "Finding the location took forever — months and months of scouring rivers. Gill's brief was quite specific. She wanted 360-degree views with no sign of human habitation, with mountains at one end and not at the other."

Simpson finally found the perfect setting in remote Jackadgery, which is located more than 1,000 miles from Sydney. "The terrain was so inhospitable that even before a frame of film could be shot, the company had to spend a big chunk of money on building a 16-kilometer road just to get us into the place," Simpson recalls. "That was the first obstacle. Then poor Steve Courtley, the special effects supervisor, checked the currents and did soundings of the river to see whether his barge with the church on it would be able to navigate."

While Armstrong and Simpson were still shooting in England, Courtley videotaped his own primitive previsualization of Armstrong's storyboards, using a miniature of the church in a pond. "Steve and the art director showed me a couple of extra angles, which was great," Armstrong

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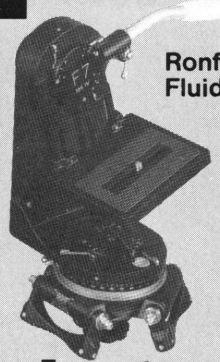

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says. "But I thought if anyone saw these grown men pushing around this funny little church boat, they'd wonder what on Earth was going on!"

The magical church envisioned by production designer Luciana Arrighi was a spired, Rococo vision of steel and glass, based upon the architecture of Crystal Palace designer Charles Paxton and others. A real glass church would have been too delicate for the rigors of filmmaking, however. To create the warped, wavy distortion of Crown Glass, Arrighi had Perspex made into panes the old-fashioned way. "Before plate glass, they used to spin windows in a giant circle and then cut the panes out, so our plastic makers did the same thing with Perspex," Armstrong explains. "They also colored it and made it the thickness of glass at that time, so every pane had individual distortions.

"The irony," Armstrong adds, "is that the church was prefabricated in Sydney and shipped up north, just like in the story. The difference was that we put it up on semi trailers. I hadn't actually seen it with the glass in place, because they thought it was too risky to transport like that; I'd only seen the steel structure assembled. They finished it on site. When it finally went down the river, there was great joy and celebration."

But what about those black-robed figures on the flatbottom camera barge? In reality, the mysterious figures were crew members, filming Ralph Fiennes as he floated downriver inside the church. "It's funny, when I see that image in the film I'm moved by it, but I also remember the entire crew looking like black Franciscan monks, in Duvateen blacks and hoods," says Armstrong. "Our cameras and the barge itself were also covered in black material, because the reflection problems were huge. We had all of our panes of glass at slightly different angles, and we were forever hanging Duvateen blackouts to keep us out of shot.

Sometimes we were inside and we'd put black everywhere and we still couldn't get rid of the reflections, so we'd just knock the panes out."

While the camera barge was powered by two 40-horsepower Johnson outboard motors, the glass church was mounted on a custom-built "raft" engineered by effects whiz Steve Courtley. The raft was motor-driven via cable relayed underneath four different sections of the Mann River. According to Simpson, the entire affair "weighed something like 25 tons, so we didn't want it to be independent, which might have allowed the current or the wind to blow us off course." The raft was controlled by push-buttons hidden in the barge pilot's paddle, and also contained the hydraulic mechanism which enabled it to sink for the film's climax.

Simpson's shots of the glass church sailing toward Bellingham have a true majesty which is made even more powerful by the use of water-to-water crane shots, which lend the sequence a soaring, mystical feel. "Ray Brown is a world-class grip with all the toys, and he made some incredible rigs for us," Simpson says. "He made a stationary and stable platform out of barges on this river, which had a reasonable current at times. He also set up a floating crane platform from which we could use a hothead and pull off some of those great shots. He even brought in a small modular crane with an arm that could extend to 40' at full extension. The crane was basically swinging on a stabilized floating platform or mounted on the dock set that the art department built."

In the end, *Oscar and Lucinda*'s visuals will defy audiences to remain unmoved. Armstrong maintains, "People who have never read the book say 'Those were the most incredible images I've ever seen,' while the ones who *have* read the book have told us, 'Oh my God, it was just as I imagined.' That's a big relief!" ■

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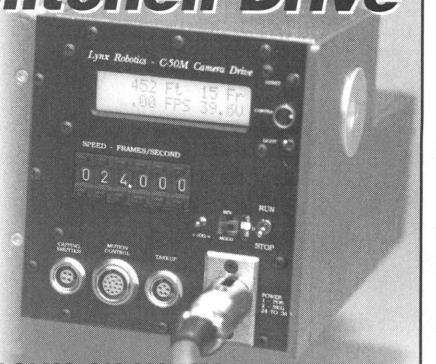

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"*The Red Shoes* is an insolent, haunting picture, in the way it takes for granted that nothing matters but art, and that art is something worth dying for."

— Michael Powell

The Red Shoes: A Ballet for Camera

Director Michael Powell and cinematographer Jack Cardiff, BSC teamed up for a memorable *pas de deux* on the 1948 dance classic, which set the standard for cinematic "choreophotography."

by George Turner

There have been other movies that espoused art for art's sake, but most were for specialized audiences; *The Red Shoes*' melodramatic treatment of ballet managed to touch a vast public.

Prior to the film's realization, director Michael Powell and writer-producer Emeric Pressburger had established an independent company called The Archers. Separately, both men did excellent work; together they were a superb team. The duo had earned extravagant praise for the

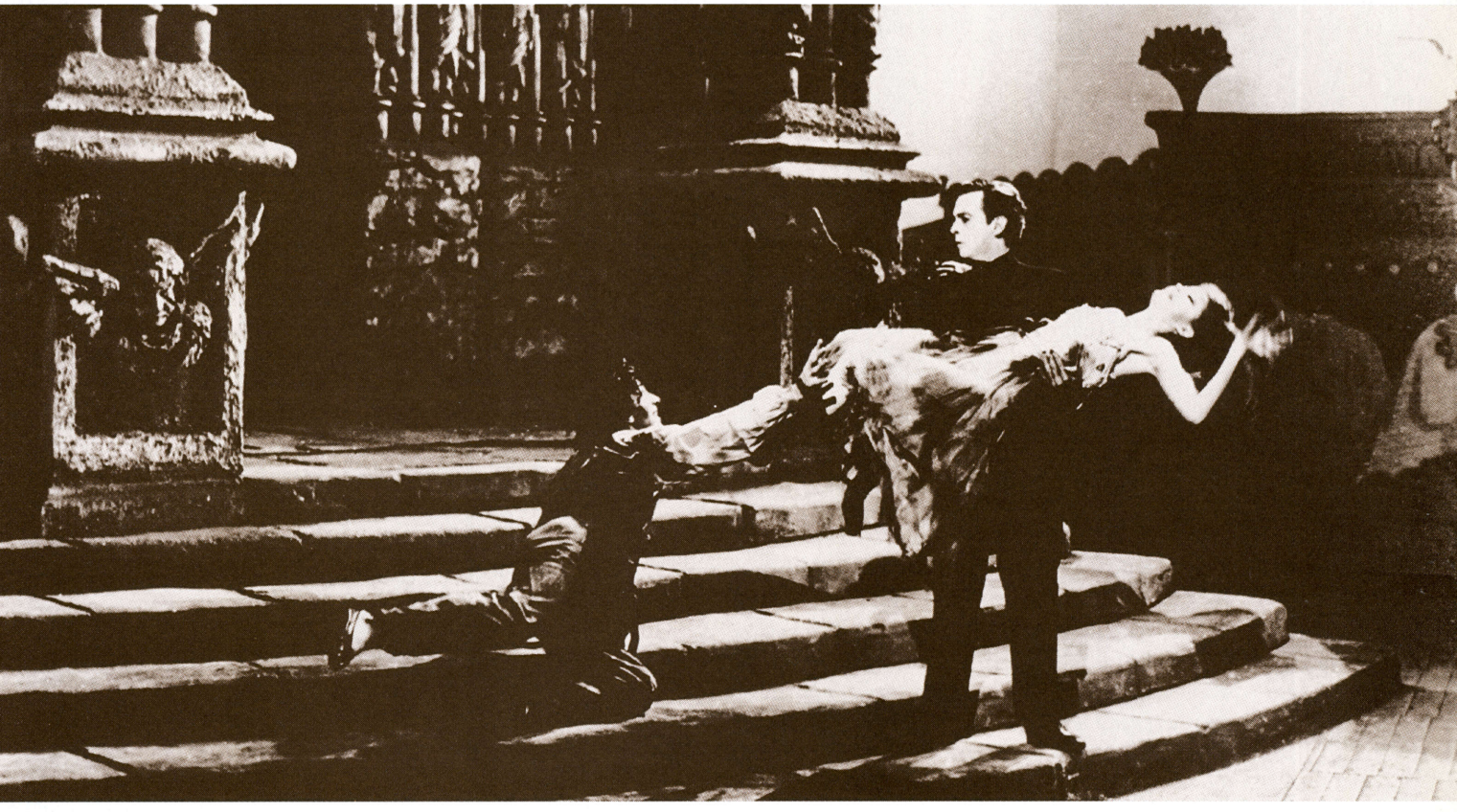
1946 films *A Matter of Life and Death* (released in the U.S. as *Stairway to Heaven*) and *Black Narcissus.* Pressburger had written *The Red Shoes* in 1939 for Alexander Korda as a vehicle for Korda's star and future wife, Merle Oberon. During May of 1946, The Archers bought the script for £9,000 and Pressburger rewrote it as a darker, heavier yarn.

During the project's planning stages at Pinewood Studios, the film's art direction was assigned to Alfred Junge, the great German designer responsible for the superb decor of most previous Archer productions. However, Powell decided that Junge's style was too stolid for the ballet sequence. Without informing Junge, he assigned the ballet sequence to Hein Heckroth, a German artist previously hired by Junge to design costumes and title art for *A Matter of Life and Death* and *Black Narcissus.* When Junge became privy to this reassignment, he walked off the production. Heckroth inherited the whole show, with art director Arthur Lawson at his side to provide technical know-how.

Assigned to compose a ballet "of concert hall quality" was Allan Gray, another past Archers contributor. He was unable to deliver the sort of music the producers had in mind, though, and his work was eventually scrapped. Replacing Gray was Brian Easdale, 38, who had scored *Black Narcissus* and whose first opera was produced when he was 17. In addition, Easdale conducted all of the score save for the ballet, which he insisted should be conducted by Sir Thomas Beecham, who recorded the soundtrack with the Royal Philharmonic.

At the picture's core is the "Ballet of the Red Shoes," much of which is staged as a dream-fantasy in the mind of the heroine as she performs onstage. In the film, the fanatical ballet impresario Lermontov describes the piece thusly: "The 'Ballet of The Red Shoes' is from a fairy tale by Hans Andersen. It is the story of a young girl who is devoured with an ambition to attend a dance in a pair of red shoes. She gets the shoes and goes to the dance. For a time, all goes well and she is very happy. At the end of the evening she is tired and wants to go home, but the red shoes are not tired. In fact, the red shoes are *never* tired. They dance her out into the street, they dance her over the mountains and valleys, through fields and forests, through night and day. Time rushes by, love rushes by, *life* rushes by — but the red shoes go on. In the end, she dies."

This ballet is, in fact, a bizarre version of the real-life drama which engulfs the central figures of the surrounding story: Lermontov, who, it is said, "makes your dreams come true, but at a fearful price"; Victoria Page, a neophyte ballerina; and young composer Julian Craster. Lermontov



Opposite: A magical moment occurs as a swirl of newspapers rises to dance with Victoria and changes for a moment into Boleslawsky. During that instant, her dress takes on the newspaper motif. Above: The tragic ending of the Red Shoes Ballet.

The Red Shoes: A Ballet for Camera

views ballet as a life-dominating religion, and demands the same zealousness from his artists. When Victoria and Julian fall in love, the ensuing conflict between the two men tears the young dancer apart. She can't live without ballet, yet she is overcome by her emotions. Forced to a decision, she leaps or falls to her death, much to the devastation of both Lermontov and Craster. This tragic denouement is notable for two deliberately ambiguous points: when Victoria stops, turns and flees from the theater, her death is staged in a manner which *suggests* that the red shoes forced her fall; in addition, it is never made clear whether she merely falls or deliberately leaps to her death.

Above: Victoria and Boleslawski (Moira Shearer and Robert Helpmann) dance happily at the street fair as the sinister Shoemaker (Leonid Massine) lurks nearby. Right: Director of photography Jack Cardiff, BSC.

The principals of *The Red Shoes* live in a separate universe where none of them — even the youthful lovers — resemble the folks next door. To depict the joys and terrors of artistic creation required a strong cast and brilliant artists; the filmmakers had to form their own ballet troupe and envision a unique world. The Australian choreographer Robert Helpmann, a premier danseur at Sadler's Wells and leading actor at the Old Vic, portrayed Boleslawski and choreographed the ballet. The legendary Léonide Massine, protégé of the great Sergei Diaghilev and producer-choreographer of numerous ballets, was secured to portray Ljubov, as well as to create and dance the role of the Shoemaker. Dominating the acting is Austrian Anton Walbrook, an international star who gives an unforgettable performance as the almost satanic but ultimately vulnerable Lermontov. Popular assumption holds that Lermontov is based on the tyrannical Russian ballet impresario Sergei Diaghilev, who died in 1929. Powell and Pressburger both insisted that Lermontov had a bit of Diaghilev in him, but in reality he was more a combination of Alexander Korda, Powell and Pressburger — perhaps with an added dash of Svengali. Throughout the picture, Walbrook is suave and implacable as he cajoles his charges or snarls memorable aphorisms such as "The dancer who relies on the doubtful comfort of human love will never be a great dancer." He also provides a truly shattering moment at the end of the tale, stepping onstage to cry out in agony that "Victoria Page cannot dance tonight."

The other male lead of the dramatic triangle was oddly cast. Not only was Marius Goring considerably older than the character of Julian Craster, but the actor was famous for his stage and screen portrayals of homicidal psychopaths. Nevertheless, he does a remarkable job as a romantic lead. The film's other players proved equally adept. The great 80-year-old German star, Albert Basserman, brings a realistic presence as the designer, Ratov. Esmond Knight, a prewar romantic actor partially blinded during his tenure as an officer aboard the ill-fated H.M.S. *Prince of Wales* — amid the battle in which the Nazi sea-raider *Bismarck* was sunk — is excellent as the conductor, Livy. The beauty and talent of Ludmilla Tcherina, star ballerina of the Monte Carlo Ballet, are strong assets to her role as a dancer named Boronskaja.

In terms of acting, however, the film's true grandeur was provided by the radiant thespian who took the part of the ballerina, as Powell once told interviewer Maurice Ambler:

"The salient feature of the film is simply Moira Shearer. Before this film could be started, it was necessary to find a dancer on the brink of becoming a ballerina, about 20 years

of age. [She had to be] beautiful, [with an] exquisite figure and legs and strength of character. [We needed someone] who could dance all the classical parts — a dancer who could act, and *not* an actress who could pretend to dance. If we had not found Moira Shearer, we could not have made the film."

Powell discovered his 20-year-old star early in 1946. Shearer was a beautiful red-headed Scot who belonged to the Royal Ballet. Fiercely dedicated to her art, she had no interest in movies, and rejected *The Red Shoes* because the script was too unlike the real ballet world. For nearly a year, the producers tried to persuade her, while Mme. Ninette de Valois, the founder and head of the Royal Ballet, insisted that she remain with their company. Powell considered using Ann Todd or Hazel Court with real dancers doubling the ballet scenes, but Helpmann, Pressburger and Heckroth dissuaded him from doing so. Two American dancers were also considered.

Suddenly, Shearer relented; fed up with Powell's bothersome visits, Mme. de Valois had asked her to accept the offer and then return to the ballet posthaste. She performed a screen test in May of 1947, and began work on the film the following month. The day after the picture wrapped, Shearer was at Covent Garden dancing in Massine's new ballet, *Mam'zelle Angot.*

Principal photography of *The Red Shoes* commenced on June 5, 1947, at the Gare de Lyon in Paris. After a week, the company moved to the south of France, where Powell and Pressburger searched the coastline between Monte Carlo and Nice for a setting that resembled Heckroth's sketches of Lermontov's villa. They found their site in the Villa Leopolda, near Villefranche, which was approached via the long, weed-choked stairway ascended by Victoria Page in the film.

Shearer arrived at Monte Carlo in late June. One Saturday night she left the stage at Covent Garden, boarding a plane the following morning to make a four a.m. makeup call on Monday. An hour later, she was on-set for her first scene: Victoria's death on the train tracks. Shearer had to lie for hours under the Mediterranean sun, partly beneath a train dripping oil onto her. A battery of huge silver reflectors amplified the heat and glare, causing the actress to suffer a sunburn and sore eyes. When she was placed on the rubber stretcher, which had lain in the sun, her back became blistered. Needless to say, Shearer's first day before the camera did little to improve her attitude toward movies.

Shearer executed the close shots of her death leap at Monte Carlo, doing three takes as she jumped onto a concealed box. (Joy Rawlings was her double her for the long shots.) On one take, Shearer tottered forward and nearly fell. Much later, at Pinewood, she played the scene in which she is shown falling through empty space. Refusing to be doubled, she jumped headlong from a 15-foot parapet onto two mattresses placed over hay. During the first take, she landed on her head and shoulder with no harm done; on take two, however, she struck headfirst and wrenched her neck quite badly.

Upon returning to London, the company filmed exteriors at Covent Garden, beginning workdays at 7 a.m. Posters announcing the Lermontov Ballet were mounted over the Sadler's Wells Ballet signs. Soon thereafter a queue formed, with patrons waiting for the box office to open! Photos and drawings were made of the stage door on Flower Street, which was duplicated in detail at Pinewood.

Jack Cardiff, BSC, who had just won an Academy Award for his Technicolor photography on The Archers' *Black Narcissus,* was the obvious choice to film *The Red Shoes. [Ed. note: Mr. Cardiff was also a member of the ASC at the time, but later withdrew from the organization because he primarily worked in Britain.]* When Powell initially asked Cardiff how much he liked ballet, however, the cameraman replied, "Not much. It's so precious — all those sissies prancing about." Nonetheless, Powell sent him to Covent Garden every night to watch performances of the Sadler's Wells Ballet Company, and Cardiff soon became intrigued by the possibilities of a ballet film.

Julian (Marius Goring) kneels at the side of the dying Victoria.

"Michael was a cameraman's dream," Cardiff wrote in his autobiographical book *Magic Hour.* "He nearly always accepted any ideas I put forth with enthusiastic support. He very rarely dithered or had doubts about things. Like all good minds, he possessed a nervous vitality."

After completion of *The Red Shoes,* the American-born Cardiff offered a London reporter the following comparison regarding the differing types of Technicolor offered on either side of the Atlantic: "As a member of the American Society of Cinematographers, I wish I could say Hollywood's Technicolor is better than Britain's, but unfortunately, such is not always the case. For several years the British studios' Technicolor has surpassed Hollywood's in many respects. I attribute this superiority not to any greater proficiency or artistry of British cameramen but, oddly enough, to the recent World War. The war-induced coal

The Red Shoes: A Ballet for Camera

shortage in England forced rationing of electrical power... Since Technicolor requires more intense illumination than does black-and-white, many studios eliminated color photography altogether, but a few struggled on under rationing conditions.

Above: One of Hein Heckroth's paintings, later translated into the live action of the Red Shoes Ballet. Right: Ljubov (Massine) conducts exercises for the Corps de Ballet.

"To the surprise of everyone, Technicolor was improved by the reduced lighting," he added. "Instead of blatant, glaring colors, the underlit film produced soft, pleasing pastel tints. I used the same technique in shooting *The Red Shoes*, and to good advantage, particularly in recording the beauty of lovely Moira Shearer... and the gorgeous settings by Hein Heckroth."

Because many of the picture's interiors were of considerable scope, the 150-amp lights available in England proved insufficient, so Cardiff went to Hollywood to confer with lighting experts. Peter Mole, of Mole-Richardson, told him that M-R had just made a powerful 225-amp arc lamp with a wide beam — "the Brute," a name which persists even today. Two prototypes had been built, but the light was not ready for marketing. Cardiff persuaded Mole to ship the prototypes to England, and the Brute made its highly successful debut in *The Red Shoes*.

Such an abundance of light, however, created another problem: a spotlight would be needed for the ballet sequences, but at the time, there was no spot of sufficient power to register as such through the general lighting of a scene. Conferences with Mole and lens manufacturer Taylor Hobson Cooke led to the design of a new water-cooled, 300-amp spot that could place 1,200 footcandles on a subject some 100 feet away.

Christopher Challis, a distinguished lighting cameraman in his own right (whose credits would later include The Archers' subsequent 1951 picture *The Tales of Hoffmann*), temporarily demoted himself to operate the camera for Cardiff on *The Red Shoes*. "It was a decision I never regretted, for the picture turned out to be one of the most memorable I have ever had the privilege of working on," Challis says in his book *Are They Really So Awful?*.

Cardiff and Challis experimented together and separately with camera speeds, filters, and means of manipulating the cumbersome Technicolor camera more freely. During a "Swan Lake" scene in the film, the camera actually spins to show Vicki's POV as she executes a pirouette.

The "Ballet of the Red Shoes" itself is an intricately tooled 17-minute sequence played without an audience reaction cut. The ballet was filmed last and took six weeks to shoot. The hard-driven cast and crew were given a welcome two-week vacation in mid-August while the dancers rehearsed in a London studio and the sets and stage effects were prepared. A scratch on Shearer's side developed into an abscess, requiring minor surgery and several days of hospitalization.

The sequence begins in the onstage town square, which includes a church, a cobbler's shop, and a street fair; as it plays out, the Girl (Shearer) and the Lover (Helpmann) notice the red shoes in the shop window. The Lover senses evil in the shoes, but the Shoemaker (Massine) gives them to the Girl and follows the couple to the fair. There, she dances wildly until the Lover loses her, but the Shoemaker is always close behind. Her subsequent partners tire, falling as cellophane mannequins which she dances over. She becomes exhausted and tries to go home, but the Shoemaker's hands, seen as giant shadows, drag her back. The shoes dance onward as the Girl turns to face the demonic cobbler.

At this point, Victoria confuses the ballet with her real-life conflict between love and the dance; the subsequent depiction of the ballet therefore arises from the girl's mind, rather than the events unfolding onstage. The faces of Lermontov and Julian, each of whom is trying selfishly to dominate her, dissolve over those of the Shoemaker and the Lover. Victoria dances through a surrealistic world of fantastical imagery which embodies all of the beauty and ugliness of her life. She even dances with a newspaper, which transforms momentarily into the Lover. The Shoemaker leads her away through

the Dead City of Failure and past the monsters of Envy and Malice. A golden spotlight lifts her high into a magnificent ballroom, where she dances with the Lover. Suddenly, Victoria sees Lermontov in his box and Julian at the podium. The audience resembles a turbulent sea, while the men are rocks against which breakers crash. The dancer is then back in the village square on Sunday morning. Grim figures are entering the church. Turned away by the congregation and the Priest (also played

by Helpmann), she collapses on the steps and dies. The Priest unties the shoes and carries the body into the church; the Shoemaker then retrieves the red shoes.

Six months before production, Heckroth began working on his sets day and night under a daylight lamp, drafting some 2,000 sketches. For the ballet, he painted 120 scenes which were then filmed in sequence; Easdale's score was adapted to match the paintings, each of which was held for whatever length was needed. Cardiff and Challis then adapted the camera angles and lighting indicated in the paintings, as the dancers performed to musical playback. Each shot, when completed, replaced the corresponding painting.

In his book, Cardiff notes, "I had a gadget made to change the camera speeds during a scene so I could go from normal speed to double speed [48 fps]. This was used to great effect when a dancer leapt in the air; just before the apex of flight, I slowed the action for a fraction of a second, so that they appeared to hover in the air. I changed speed with pirouettes so that a dancer would start off at normal speed and then, as I changed the speed to only four frames a second, whirl faster and faster until she was only a spinning blur. This [technique] became highly successful in what was called 'The Paper Dance' with Moira."

In this scene, loose newspapers scatter along the ground, swirl up and assume a man-like aspect (a puppet manipulated with wires). They turn into the figure of the Lover, and finally transform back into paper. The brevity of the shots made dissolves impractical, so changes were achieved through exact frame cutting.

Other effects were achieved through similarly simple techniques. A shift from day to night resulted from multiple dissolves between five background paintings. The gigantic falling leaves in one sequence were actually bits of cellophane dropped from wires into a set fashioned of transparent sheets. The huge shadow of the Shoemaker was cast by two Brutes, with the units' condenser lenses replaced by coverings of clear glass. The stage-set scene of the auditorium being engulfed by huge waves was accomplished by doubling a shot of the raging sea at Cornwall over the studio set, which was augmented with a glass painting.

One particular painting reveals Shearer dancing through space. Towering mountains appear in the background, along with several other ranges in the distance; bizarre, multicolored wisps twist past in the foreground. Each of the mountain ranges and clouds were painted on separate glass sheets, in

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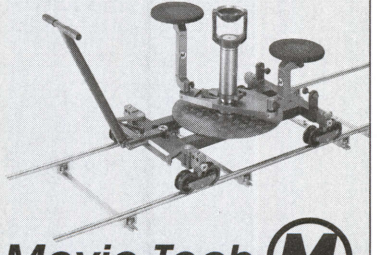

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front of which was a flat glass water tank; chemicals that created streaks and trails without clouding the water were dropped from various heights into the tank. A shot of Shearer suspended on wires was photographed separately. In postproduction, the dancer was matted into the scenes by George Gunn, a British Technicolor technician who had developed the Gunnshot traveling-matte process.

Matte paintings were also featured liberally in both the ballet sequence and the surrounding story. These are expertly executed, with the exception of a poorly composited scene representing the interior of a Parisian opera house.

The Red Shoes had been allotted a 15-week schedule and a budget of £300,000. Filming finished in 24 weeks (on November 21, 1947) at a final cost of approximately £551,927.

The overall production itself was somewhat of a stormy voyage. The unyielding cement floors of the stages caused pain and swelling in the legs and feet of the dancers, and the blazing lights actually produced some fainting spells. Shearer found herself dancing under near-impossible conditions that included being suspended for up to eight hours at a time in a harness while being buffeted by wind machines. She also endured some Lermontov-like castigations by her gentle but tough director. Powell publicly humiliated Basserman and his wife, which also estranged him from Walbrook, to whom Basserman was a hero. Archers stalwarts Junge and Gray would never work with the filmmaking team again.

In January of 1948, a rough cut of *The Red Shoes* was screened for Rank Film executives; the top brass hated the film. Pressburger then screened the picture for Korda, who made him a purchasing offer. Rank decided not to sell, and extended completion money on the stipulation that Powell and Pressburger would take a £10,000 reduction in their salaries and an increase in their share of the profits from 25 to 37.5 percent. Rank representatives later sat silently through a private screening of the final cut and stalked out without a word.

Instead of the planned gala premiere and advanced-price presentation, *The Red Shoes* was sent into general release. Most London critics thought it a lavish flop. The movie was even angrily denounced at a U.S. screening at Universal-International, which had a releasing agreement with Rank. The "turkey" was then shunted off to little Eagle Lion Pictures (a Pathé Industries subsidiary partly backed by Rank) which opened the film quietly as a reserved seat attraction at New York's Bijou. Overall, the movie remained in release for two years and seven weeks, and did surprisingly well in its roadshow and popular-price exhibitions as well.

Eventually, *The Red Shoes* made *Variety's* "Golden Fifty" list of the top moneymakers of all time, and won Academy Awards for Heckroth, Lawson and Easdale, as well as nominations for Best Picture, Best Story (Pressburger) and Best Film Editing (Reginald Mills). This expressionistic fantasy is now generally regarded as The Archers' greatest triumph. ■

Credits

J. Arthur Rank *presents a production of* The Archers; *written, produced and directed by* Michael Powell *and* Emeric Pressburger; *original screenplay by* Emeric Pressburger; *additional dialogue by* Keith Winter; *color by* Technicolor; *director of photography,* Jack Cardiff, ASC, BSC; *camera operator,* Christopher Challis; *production designed by* Hein Heckroth; *art director,* Arthur Lawson; *music composed, arranged and conducted by* Brian Easdale; *"The Ballet of the Red Shoes" played by the Royal Philharmonic Orchestra conducted by* Sir Thomas Beecham, Bart.; *aria sung by* Margherita Grandi; *dance music,* Ted Heath's Kenny Baker Swing Group; *editor,* Reginald Mills; *color control,* Natalie Kalmus; *associate,* Joan Bridge; *scenic artist,* Alfred Roberts; *miniature painting,* Ivor Beddoes, Joseph Natanson; *Technicolor composite photography,* F. George Gunn *and* D. Hague; *special effects cameraman,* Wally Gentleman; *wardrobe,* Dorothy Edwards; *sound,* Charles Poulton; *dubbing,* Gordon MacCullum; *music recorder,* Ted Drake; *liaison editor,* John Seabourne Jr.; *continuity,* Doreen North; *assistant producer,* George R. Busby; *assistant director,* Sydney Streeter; *masks designed by* Terence Morgan II; *wardrobe,* Elsie Withers, Dorothy Edwards; *Miss Shearer's dresses by* Jacques Fath of Paris, Mattli of London; *Mlle Tcherina's dresses by* Carven of Paris; *makeup artist,* Ernie Gasser; *Ballet excerpts: "Coppelia"* (Delibes), *"Swan Lake"* (Tchaikovsky), *"La Boutique Fantastique"* (Rossini-Resphigi), *"Giselle"* (Adam); *Produced at* Pinewood Studio; Western Electric *recording; Released in United Kingdom by* General Film Distributors, *September 6, 1948. Released in U. S. by* Eagle Lion Films. *Running time 134 minutes.*

Boris Lermontov, Anton Walbrook; *Julian Craster,* Marius Goring; *Victoria Paige,* Moira Shearer; *Ivan Boleslawski,* Robert Helpmann; *Ljubov,* Léonide Massine; *Ratov,* Albert Basserman; *Boronskaja,* Ludmilla Techerina; *Livy,* Esmond Knight; *Terry,* Jean Short; *Ike,* Gordon Littman; *A Balletomane,* Julia Lang; *Her Mate,* Bill Shine; *Professor Palmer,* Austin Trevor; *Dimitri,* Eric Berry; *Lady Nelson,* Irene Browne; *Stage-door Keeper,* Jerry Verno; *Lord Oldham,* Derek Elphinstone; *Madame Rambert,* Madame Rambert; *Gwladys,* Joy Rawlins; *M. Boudin,* Marcel Poncin; *M. Rideout,* Michel Bazilgette; *Vicky's Dresser,* Yvonne Audre; *Boisson,* Hay Petrie; *Guard,* George Woodbridge; *double for Shearer,* Joy Rawlins.

"Ballet of "The Red Shoes": choreography by Robert Helpmann; *the part of the Shoemaker created and danced by* Léonide Massine; *solo dancer and assistant maitre-de-ballet,* Alan Carter; *solo dancer and assistant maitresse-de-ballet,* Joan Harris; *Dancers:* Joan Sheldon, Paula Dunning, Bryan Ashbridge, Denis Carey, Lynne Dorval, Helene France, Robert Dorning, Eddie Gaillard, Paul Hammond, Tommy Linden, Trisha Linova, Anna Marinova, Guy Massey, John Regan, Peggy Sager, Ruth Sendler, *and* The Corps de Ballet.

Information provided by Jack Cardiff, BSC; Wally Gentleman, BSC, CSC; and the late Michael Powell. Research assistance by Stacey Endres Behlmer of the Margaret Herrick Library of the Academy of Motion Picture Arts and Sciences.

On the Spot

Andre's Run

by Mary Hardesty

Virtual cinematography had to happen eventually. Like any other highly technical field, the art of camerawork is becoming increasingly specialized: directors of photography concentrate on everything from cars and babies to tabletop work and underwater action. Digital Domain visual effects supervisor Fred Raimondi has taken cinematography one step further with his work on Nike's "Virtual Andre" advertisement.

The spot, which won a Clio and has a place in AICP's permanent collection in New York's Museum of Modern

Art, revolves around a kid who goes into a fancy department story of the future and asks the sales clerk if he can test-drive the store's hippest game. The boy dons goggles and engages in a match of virtual tennis with sports superstar Andre Agassi, who, of course, runs circles around him on the court. The kid's attempts to return Agassi's virtual volley results in him destroying displays on several floors. As the boy lies amid the shop's wrecked contents, the virtual Agassi can't resist telling the child that his tennis prowess, in a word, "sucks."

Scheduled to run during the 1997-1998 tennis tournament season, the 60-second national spot serves as this year's digital effects benchmark in the world of commercials. "By the time we were halfway through, we knew we had something very cool," recalls an enthusiastic Raimondi.

The live-action shots of Andre Agassi were executed via motion control on a stage at Hollywood's Raleigh studios. To facilitate the effects, live-action footage of Agassi displaying his best shots had to be videographed via witness points on his clothes. "We wanted his clothes to move realistically during the game, so we put the points on his clothes instead of having him wear a tight-fitting body suit," points out Raimondi, who notes that either blue-screen or greenscreen can be used for the witness-point capture session. "These reference points were shot on video and input into a PC; they enabled us to create a virtual Andre doing his famous forehand, backhand and serve."

In addition, Agassi was asked to deliver dialogue so that the effects artists could create a realistic-looking close-up shot of the virtual Andre. "We were very concerned that these extreme close-ups of a computer-generated Agassi would be accepted by the audience," Raimondi points out. "Unlike a *Jurassic Park* dinosaur, the audience knows what a human face looks like, and any discrepancy from reality will be picked up by the subconscious. They may not know what's different about the face, but they will know it's not 'real.' To help fool the audience, we purposely didn't light using typical graphic light — we lit it more 'cinematographically.'"

As with most regular shoots, Raimondi had a day for pre-lighting tests;

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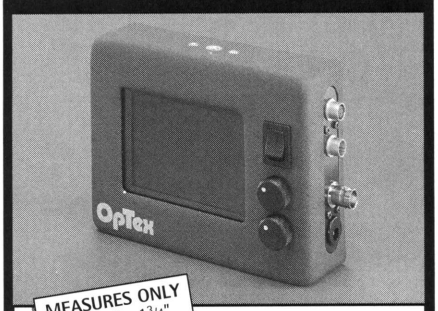

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the difference was the creation of virtual lighting through the "Gaffer" software program. "This program enabled us to tell the computer exactly where we wanted to place the 10Ks, the HMIs, the bounce cards, etcetera," says Raimondi, who aspired for a dramatic portraiture lighting effect. "We could even ask [the program] to put muslin or scrims over any of the lights."

After completing both the videotape of Agassi and the live-action footage of the boy playing the virtual game in an actual department store, the Digital Domain crew pieced everything together using Lightwave software on Silicon Graphics and Dec Alpha computers: "We SGI'd all of Andre's body parts; for Andre's head, we used Lightwave on a Dec Alpha platform," explains Raimondi.

All of the background environments were also accomplished in Lightwave on Dec Alphas. Raimondi determined, however, that writing an interface program from his motion capture software to Lightwave — just to do the body parts — would have taken an inordinate amount of time. "Motion capture files are enormous," states Raimondi. "We were on a very tight schedule; since we already had a software pipeline to go to Alias for those files, that's what we did."

Since Andre Agassi was playing tennis in the future, Digital Domain needed to design an appropriately futuristic court. During the two weeks needed to clean up the motion-capture data, Raimondi worked with director Allan Van Rijn to design a tennis court, tennis chair and judges' area with a deconstructionist aesthetic. "By creating most of the spot on a computer, we were able to do a lot of shots we couldn't do with a real camera," observes Raimondi. "We could move the camera from 30' high to six inches off the ground in 45 frames and have it choreographed perfectly to when Andre hits the ball. Additionally, we were able to use lenses that don't exist in reality, such as an 8mm lens with no distortion. There is even one place in the spot where Andre scoops the ball up and his racket actually pierces [the space] where the lens would be — in effect jumping into the face of the viewer: that's something you couldn't do with a real lens and camera."

But Raimondi's proudest design is actually the virtual Nike tennis shoes. "Most people who see the spot are impressed with the beautiful lighting, but we worked very hard on those shoes," offers Raimondi. "We modeled them at a very high resolution so we could push them right into the face of the viewer."

A production that typically would require 15 weeks was accomplished in one-third of the time; Raimondi attributes this breakneck pace in part to double shifts and a crew of more than 20 visual effects technicians. His modesty prevents him from mentioning that pulling off a multiple award-winning spot this complex also requires a visual effects supervisor with an in-depth knowledge of myriad photographic techniques. "My background in broadcasting and cinematography [Raimondi studied at the National Film Studio in Ireland] really helped on this spot," he reluctantly admits. "My philosophy is 'nothing works like film,' and I think it will be a very long time before we're able to make an acceptable computerized alternative. I like to take the best from both worlds: you get the best possible end result when the visual effects people can work as a team with the cinematographers. I always encourage cinematographers to come and see what we do here at Digital Domain. When all of us put in 100 percent, we get 200 percent, and that creates a winning result, which is what it's all about." ■

Credits

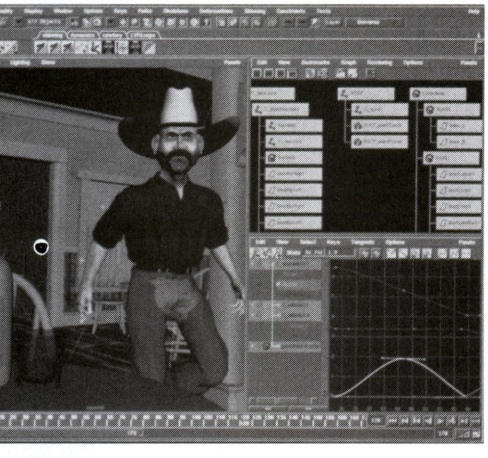
Spot: Virtual Andre
Length: 60 seconds
Client: Nike
Director: Allan Van Rijn
Virtual Cinematography: Fred Raimondi and his crew at Digital Domain, Venice, CA
Production Company: RSA
Agency: Wieden & Kennedy, OR
Agency Producer: Colleen Wellman
CGI producer: Eileen Moran

New Products

compiled by Andrew O. Thompson

Maya Takes Center Stage
by Mark Dillon

A new procedural modeling and animation program was unveiled by software developers Alias/Wavefront at their spacious new head office in downtown Toronto, Canada on December 4. Dubbed "Maya," the new software represents a major step forward from other Alias/Wavefront computer graphics products, which have been used for character animation and visual effects in such feature films as *Men in Black, Face/Off, Contact, The Lost World: Jurassic Park, Batman and Robin, Toy Story*, and *Terminator 2*. Penny Wilson, the President of Alias/Wavefront, a subsidiary of Silicon Graphics, Inc., welcomed customers who had traveled from all over North America and the U.K. for the day's events, which included a demonstration of Maya by Alias/Wavefront's staff, as well as testimonials from industry animators who have already been working with the program.



First seen in a Beta version at the April 1997 NAB conference, Maya allows animators an unprecedented amount of control. For example, a scene can be cleared of all components except for one object, which can then be quickly repositioned and moved onscreen, in lit form, in three-dimensional space. In this manner, the angle, color, and intensity of the scene's digital lighting can be gauged and, with Maya's extensive lighting tools, easily altered to affect the mood.

Maya is an intelligent system that takes into account the effect of a scene's various actions. In the demonstration short film "Ruby's Saloon," a dodo bird named Ruby exits his cage and rides a unicycle across a suspended rope. In a pull-down window, the animator can choose an "add gravity" feature, and the rope will automatically move in accordance with the programmed motion of the unicycle, with constraint options keeping the rope's action within the bounds of physics. A whole set of natural dynamics can be integrated into a scene: rain can be added, as can winds of various forces, with the angle of the falling rain being automatically altered. A "collision" option makes the individual rain particles break up upon their impact with the ground. Maya's Flexors tool can be applied so that when the animator chooses to move a joint in a character's body — bending an elbow, for example — there will be a corresponding muscular bulge. The point-and-click MEL (Maya Embedded Language) interface circumvents the need to program these effects.

During the research and development stages of creating the program, Alias/Wavefront approached customers for input regarding Maya, and those who were on hand for its debut voiced their satisfaction. The first commentary came from Loren Olson, technical director of Rhonda Graphics Inc., a Phoenix-based company whose computer animation and visual effects have been used in commercial spots for Nike and Disneyland Japan. Olson presented a 35mm live-action TV ad for golf club manufacturer Ping Putters called "Running Scared," in which a golf hole physically moves around a course, evading a perplexed golfer. Considering his time and budget restrictions, Olson believes the piece could only have been realized with Maya. He transferred the 35mm footage to Beta, imported it into the computer, and applied Maya's Motion Blur feature, which creates realistic movement in a scene of composited live-action and computer-generated elements. The animator then plotted the trajectory of the elusive golf hole through a grid on the screen, and replaced the geometric plane with the original shot of the golf green. As the hole seems to move around the green, animated blades of grass spewed forth, an effect realized with Maya's particle-rendering capabilities.

The Kleiser-Walczak Construction Co. out of North Adams, Massachusetts, represented by senior animator Derald Hunt, is also effecting that transition. The company, which has produced digi-

Above, left: Alias/Wavefront presented the animated short "Ruby's Saloon," in which rugged cowboy Mel strolls into a Western bar. Produced with Maya using its MEL scripting language, the short offered realistic character expression, motion, and overall detail. Above: Greater detail on a Maya-generated character.

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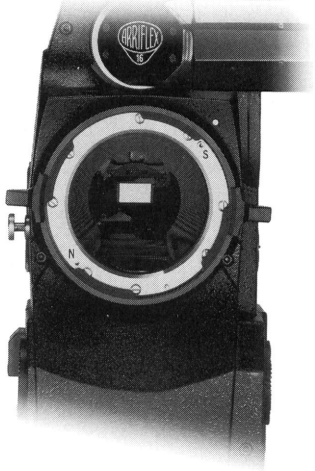

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tal visual effects for the feature films *Stargate*, *Judge Dredd*, and *Honey, I Blew Up the Kid*, as well as numerous TV programs and commercials, was so impressed with Maya that they changed over from a different system halfway through the production of their animated 70mm 3-D *Adventures of Spiderman* ridefilm. Starring Marvel Comics' web-slinging super-hero, the attraction will be shown at the Universal Studios Theme Park in Orlando, Florida. Hunt demonstrated how quickly a character can be animated to speak by programming various mouth movements, synching an imported sound file, and using "point-and-click" to solve such anatomical problems as having a character's teeth move when his or her mouth is agape. Maya's "rigid body" dynamics are especially effective when the villainous, steel-tentacled Dr. Octopus crashes through a brick wall, while its "soft body" dynamics allow a character's cape to billow delicately in the breeze. Kleiser-Walczak Construction expects to be completely switched over to Maya this year.

Finally, the guests at Alias/Wavefront's demonstration were joined via telephone from Hollywood by Dan DeLeeuw, digital effects supervisor of Dream Quest Images, which was recently provided visual effects for *Flubber*, *George of the Jungle* and *Starship Troopers*. Dream Quest's current assignment, the Disney remake of the 1949 film *Mighty Joe Young*, about a giant ape run amok, was conceived with Alias/Wavefront's PowerAnimator program, then transferred over to Maya to take advantage of its superior functions. Dream Quest is handling 28 effects shots for the film, incorporating a computer-generated gorilla with other shots utilizing live-action ape creations by makeup effects specialist Rick Baker. The use of "virtual humans" enables the filmmakers to carry out action sequences that would have been fatal to actual stunt men. Mighty Joe himself becomes a realistic simian thanks to Maya's stitching features, which hide the seams between the ape's digitally constructed body parts. The gorilla's varied emotions are, of course, conveyed exclusively through body language and facial expressions, but animators and technical directors can be assured that if it can be programmed, Maya will bring it to life.

The program is compatable with all Silicon Graphics workstations with R4000 and above processors. This includes not only current systems, but also the Indigo^2 Impact and Onyx InfiniteReality workstations, as well as the R5000 and R10000 CPUs. Maya will require the IRIX6.2 operating system.

Alias/Wavefront (416) 362-8558, fax (416) 369-6139, website: www.aw.sgi.com.

Image Shaker

Clairmont Camera's new Image Shaker is designed to provide camera-safe shaking effects in a spacesaving quiet package. This is accomplished not by moving the whole camera, but by using modern computer-controlled actuators and captive custom-formulated optical materials to move the image seen by the camera.

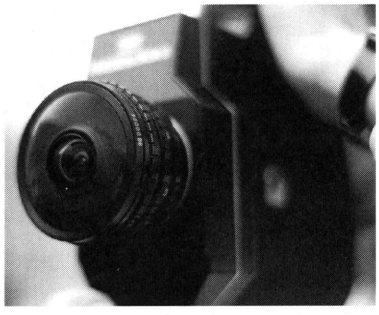
One can independently adjust on both the X and Y axis, enabling one to simulate, for instance, a bouncing off-road vehicle by creating moderate side-to-side motion and vigorous up-and-down shaking. Movement can also occur in all directions. The advanced micro-controller provides controllable random motion. Since the system is stationary, the operator is now actually able to view through the eyepiece while the image is shaking. The unit is compact and weighs 9 pounds; it mounts on 15mm Arriflex rods in front of the lens, and accepts a matte box on the front. Because it is

quiet and provides a great amount of shaking without damaging the camera or lens, it is compatible with both sound and MOS cameras. The prime lens focal lengths covered range from 18mm to 180mm.

Clairmont Camera Rentals, (818) 761-4440, fax (818) 761-0861.

Ultra-Wide 8mm Lens

The Widescreen Centre presents an ultra-wide 8mm lens for the 16mm Krasnagorsk motion picture camera and



any SLR or cine camera having the standard M42 mount. For example, the Zenith 202, the older type of Pentax, can be used on any C-mount camera with accessory adapter. This multi-coated, f3.5 aperture, M42-mount Peleng lens provides a wide-angle view with little apparent distortion — its angle of view equates to 60 degrees.

Widescreen Centre, 0171-935-2580, fax 0171-486-1272, email: call@wscreen.demon.co.uk.

Underwater Imaging

Pace Technologies' new High Definition Underwater Imaging System consists of a versatile camera housing rated to depths of up to 300' and is designed for use with Sony's HDW700. At two pounds wet (60 lbs. dry), it is one of the smallest systems available for professional electronic underwater imaging. In order to accommodate different shooting styles, the housing has been designed with a positionable viewfinder, and a new feature allows the operator to access the camera's matrix card while underwater.

The Hi-Def system offers several features well-known to other Pace housings. The system's ergonomic design

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allows an operator to pull the housing in close, thus maximizing control, freedom of movement, and underwater comfort. All external controls — zoom, iris and VTR run — are placed within easy reach near the handgrips, and the system is equipped for full-remote operation. The design also includes a diagonal seal and an inner sliding tray. Topside, the housing's upper diagonal portion lifts off neatly, providing total access to the camera within, and thereby speeding up tape and battery changes. The housing itself is built from marine-grade aluminum, and is anodized for corrosion protection; it also includes quick-change dome and flat ports, allowing the operator to shoot both underwater as well as topside in wet locations.

Pace Technologies, (818) 759-7322, fax (818) 759-7323, website: www.pacetech.com.

DVCAM/DVPRO Cases

KATA announces the CCC-DV, their newest soft case, designed for DVCAM, DVPRO and similarly sized camcorders. The CCC-DV is large enough to accommodate the camera plus accessories — batteries, charger, tripod baseplate, mattebox and raincover. An entry system with linked zipper slides ensures quick retrieval of items when needed. Other features include a durable Cordura exterior, a clear-plastic window for operator ID, a contoured and padded interior to protect the contents from shocks and jolts, a zippered exterior pouch for stowing the tripod baseplate and external pockets with safety snap locks. A moveable partition separates the camera lens for the accessories. Removing the partition allows the camera to be stowed with the mattebox installed. Internal straps secure the camera during transport.

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KATA, (805) 520-7342, fax (805) 520-7342.

Pod Platform

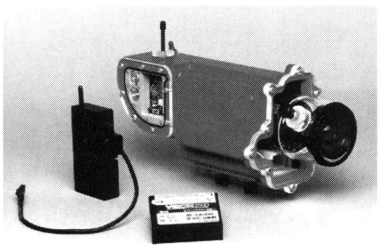
Spider Support Systems introduce the Spider Pod Version 2.0. The new revision of this system is stronger, has deeper support channels, and features an adjustable front leg to compensate for uneven surfaces. This unit elevates a tripod and camera two feet in height, allowing videographers to achieve high-angle perspectives. The riser and platform section are separate units, and therefore movement from the videographer will not cause camera shake. The Spider Pod is made of strong lightweight aluminum and features a three-inch (7.6cm) channel, which can accommodate virtually every make of tripod spreader or feet. The standing platform is carpeted for operator comfort and can be situated next to the tripod riser for both ENG and studio configuration. The tripod riser and standing platform folds together into a compact briefcase (sized 3.5" x 28" x 28"/ 8.9cm x 71cm x 71cm) for convenient transport and storage. The pod features a padded carrying handle, or can be stored in the optional hard shipping case; a soft case made of ballistic nylon is also available and carries a lifetime warranty.

Spider Support Systems, (703) 212-8200, fax (703) 212-8461, website: spidersupport.com.

Underwater Housing

PhotoSonics now offers remote-controlled, handheld Splash housings for the PhotoSonics 16mm 1VN camera. Both housings are self-contained with the necessary batteries and do not require additional cables for power. These user-friendly housings are capable of 24-200 fps with dual-pin registration;

the housings are operational up to a maximum depth of 15' in either the hard-wire or handheld configuration. With the various lens ports available, the system is compatible with C-mount lenses from 3.5mm to 15mm. Each lens port has an easy access aperture control. The handheld housing weighs 9.5 pounds. The remotely operated housing weighs 11.5



pounds. The remote control weighs only one pound and uses a unique waterproof radio control transmitter that can signal the camera with a run command up to one mile away; it can also be used in a hard-wired configuration using water-safe in-line connectors.

PhotoSonics, (818) 531-3240, fax (818) 531-3258, e-mail: rental@photosonics.com.

Lengthened 16mm Loads

Kodak now packages seven of its popular 16mm color negative films in 800' lengths. This gives cinematographers the ability to record 22 minutes of 16mm film at 24 fps without changing the film or magazines. (Previously, the longest length available was 400' with an 11-minute capacity.) The formats available in 800' lengths are Eastman EXR color negative films 7245 and 7248, Kodak Vision color negative films 250D 7246, 200T 7274, 320T 7277 and 500T 7279, and Kodak Primetime teleproduction film 7620.

Contact your local Kodak representative for further details.

Editor's note: Press releases and information regarding new products and services may be e-mailed directly to andrew_thompson@cinematographer.com, or sent as text files on Macintosh-formatted diskettes. Regular mail and photos may be sent to P.O. Box 2230, Hollywood, CA 90078. ■

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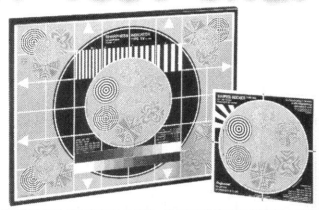

The Sharpness Indicator is made up of test-targets with concentric circles printed on a Reference Field Level background. The background has the same reflectance as the average reflectance of the targets. This means that when a target appears to blend with the background, it indicates that the target is beyond the sharpness of the system being tested.

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Points East

Shooting in the Big House

Documentary techniques and location work add realism to the prison drama *Slam.*

by Eric Rudolph

On-location realism reached new heights during the production of Marc Levin's dramatic feature *Slam*, which was shot inside a crowded, working Washington, D.C. inner-city jail. Filmed last July on a $1 million budget, the independently produced *Slam* was an official dramatic entry in last month's Sundance Film Festival.

Director Levin *(Blowback, Gang War: Bangin' in Little Rock)* took visual cues from his award-winning documentary work (much of which has been seen on HBO) and adopted a "drama verité" style for *Slam.* "We found that our HBO documentaries, especially *Prisoners of the War on Drugs*, were being used as a style syllabus for a lot of gritty fiction work, such as HBO's prison drama series *Oz* [see Points East, *AC* Sept. 1997]. We didn't mind; we're friends with [*Oz* producer] Tom Fontana; in fact *Slam*'s coproducer, Richard Stratton, was a consultant to *Oz.* However, the success of that show opened our eyes to some possibilities we had overlooked.

"We suddenly realized that it didn't make sense for us to try to pursue theatrical features in the typical Hollywood fashion of angling to line up a star with a property. We decided that we should simply do what we do best: we have a talent for filming in the middle of chaos and action, so we made a feature using that approach."

Levin and longtime cinematographic collaborator Mark Benjamin *(Damned in the USA, The Last Party)* had just shot an upcoming HBO documentary series inside the District of Columbia prison system, and convinced authorities to allow them to film half of *Slam* in the District's main jail. Up to 40 of the jail's 2,500 prisoners were used as extras, and a half-dozen other inmates were awarded speaking parts; professional actors portrayed the lead roles.

Slam is the story of Ray Joshua (Saul Williams), a young African-American resident of a tough D.C. ghetto who turns to small-time marijuana dealing. Joshua is jailed after being busted with a quarter-pound of pot. While incarcerated, Ray is unwilling to take sides between two rival gangs, but eventually the warring factions confront him in the yard. Finally released on bail, Ray is a huge success at a poetry slam, but still faces the decision of whether to serve his remaining jail time or go free in return for becoming a police informant.

Filming a dramatic feature inside of a working jail was not especially problematic, claims Benjamin, an Emmy and Cable Ace Award-winning commercial/documentary cameraman. "I've filmed wars and shot 10 documentary films in prisons, so working in a prison was relatively easy for me. I like being among the blood-and-guts of real life. In fact, I prefer filming in a prison to working in the sometimes paranoid atmosphere of a commercial shoot."

Benjamin managed to maintain a natural look in the jail scenes while not bowing to the environment's austere visual limitations. "As much as this film is about the unvarnished reality of life behind bars, I was also making a theatrical feature, so of course I was trying to enhance the look," he notes.

That enhancement was not easy, as the filmmakers had to balance their unprecedented access with limited technical resources. Explains Benjamin, "We never did a tie-in or used a generator; we were limited to lights that would draw no more than 10 amps each. My kit consisted of three Dedo lights, an Arri compact 1200-watt HMI, a 20- to 40-watt handheld battery light of my own design and a lot of incandescent photoflood bulbs.

"The prison officials would not allow us to replace any of the fluorescent tubes; however, there were a lot of older incandescent fixtures throughout the jail. I placed 2800, 3300 and 5500°K bulbs in those fixtures, depending on the color temperature of the other existing lighting I was trying to work with." The photoflood bulbs were often altered with 216 diffusion and color-correction filters; Benjamin relied on a color-temperature meter to help him balance the wide array of lighting combinations.

For wider scenes, the existing fluorescents and the enhanced incandescent fixtures provided an overall ambiance; close-ups were captured with Dedo lights bounced off of cards. The diminutive Dedos also helped with scenes shot through cell bars. "An Inky was too big for these shots," Benjamin says. "[To avoid shadows,] we needed an instrument small enough to throw its light between the bars. When we couldn't place Dedo lights between the bars, we hung lights from the tops or the sides of the cells and bounced them into show cards."

During the filming of handheld scenes that trailed inmates through the prison, Benjamin's hand-holdable battery light provided subtle fill for close-ups. "I held my little light, fitted with 216 diffusion and color-correction gels, in my left hand, while I shot with the camera in my right. It added some much-needed low light, because all of the practicals were coming from above." Fill reflectors were also used extensively "so we weren't always shooting deep, dark eye sockets."

Because of all the overhead

lights, special attention was paid to adjustments of the eyebrow on the matte box of Benjamin's Super 16 Aaton XTR Prod camera. He offers, "One of the main reasons features look so great and documentaries often don't is because of the attention that feature crews pay to flags and 'lensers.' Keeping light out of the lens, of course, helps to give you that great 'feature-film' contrast and saturation. On *Slam*, we concentrated on using our lens eyebrow to achieve some of that effect, and I think that attention paid off."

Benjamin's refusal to use high-speed stock further enhanced the film's look. "The fastest stock I shot was daylight-balanced Vision 250D 7246, which I only used when I had a window with daylight in the frame; there was no time to gel windows." Most interiors and night scenes were shot with Vision 200T 7274, and almost all daytime exteriors were executed with 50 ASA EXR 7245.

The stocks were rated normally and then overexposed by a half-stop, on average. "Like most cinematographers, I hate a thin negative, especially in Super 16 and especially if you know you're going up to 35mm for a theatrical run," explains the director of photography. "Overexposing also helps reduce apparent grain." However, exteriors, mostly shot on fine-grain 7245, were not overexposed. "The 45 looks just fine dead-on," says Benjamin.

"If the light was just too low or I couldn't light a scene, I used one of my Zeiss Superspeed T1.3 lenses," Benjamin explains, adding that most of *Slam* was shot at or near full aperture. The bulk of the film was shot with two Canon T2.4 zooms, an 8-64mm and and 11-138mm.

Despite the possible perils of shooting in an actual penitentiary, Benjamin claims that he was never concerned about his personal safety. "Prison is a surprisingly calm place," the cameraman concludes. "but I still worried about the potential for violence, because I didn't want our presence to be blamed for causing any problems, which would have restricted our access and slowed down the production. And, of course, I didn't want to see anyone — crew, cast or inmates — get hurt." ■

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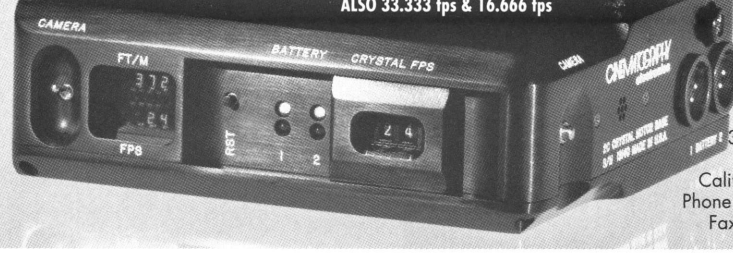

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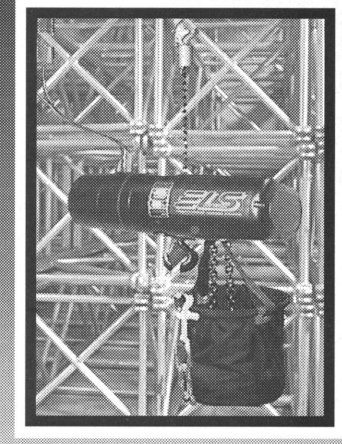

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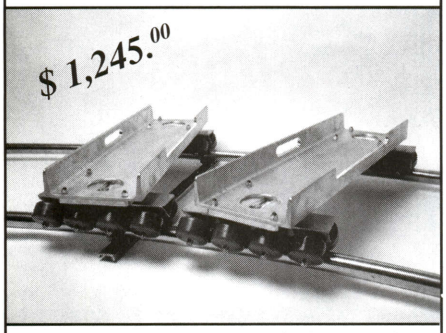

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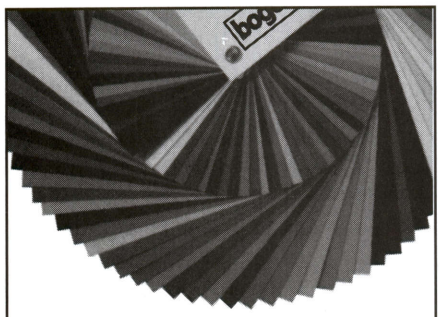

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Books in Review

by George Turner

Lighting Technology
by Brian Fitt
and Joe Thornley
Focal Press, 420 pps.,
paperback, $56.95

For true lovers of cinematography, there can be no such thing as too many books on the subject of illumination. *Lighting Technology* — a completely revised and updated version of 1991's *Lighting by Design* — comes from England, where the craftsmen execute their art a little (but not a lot) differently. The authors are well-seasoned lighting consultants: Fitt is a 33-year veteran of the BBC, and Thornley has worked for many major lighting manufacturers on numerous television, theater and film studio projects.

The chapters are as follows: Lighting the Subject, Theory of Light, Light Measurements (which includes a fine section on light conversion in film and television cameras); Light Sources; Luminaires; Lighting Suspension Systems; Dimming and Control; Stage and Studio Technical Design; Lighting for Sports, Special Events and Locations; Automated Lighting Systems; Electrical Distribution; Working Lights and Emergency Systems; Safety; and Maintaining and Hiring Lighting Equipment. Also included is a glossary of terms, world mains voltages, lamp tables, luminaire performances, formulae and conversion tables, and CIE luminaire symbols.

Another excellent feature is a 16-page color section of filter comparison tables containing 70 references, with the covered brands including Lee, Arri, Rosco, Strand, GamColor and Chris James. These tables are helpful in selecting a matching filter of a different make or of lighter/darker tint, for faithful reproduction of a given lighting plan anywhere in the world, and for guidance in purchasing replacements on the road.

The depth of the information possessed within *Lighting Technology* definitely makes this tome a worthwhile investment.

Charlie Chaplin and His Times
by Kenneth S. Lynn
Simon & Schuster,
606 pps., hardback, $35

The published works of historian Kenneth S. Lynn include distinguished biographies of Mark Twain, William Dean Howells and Ernest Hemingway. But it seems likely that these men erected fewer barriers to understanding than Charlie Chaplin, a man often eulogized as the greatest genius in the history of the movies.

Certainly, Chaplin's own 1964 autobiography is too inventive to provide trustworthy clues to his true inner self. When trying to equate Chaplin the man with his on-screen persona, one encounters a gulf as yawning as the difference between his roles of the gentle "Little Tramp" and Monsieur Verdoux, who blithely married and murdered wealthy widows for a living: the truth lies somewhere in that unbridged chasm. Lynn reveals many instances where events from the man's childhood and adult life served as source material for his Hollywood screenplays.

The influences upon Chaplin's life and art were many: a childhood worthy of a Dickens novel, with a drunken father and an insane mother living in poverty in the streets of London; pioneering film comedy in Chicago with Essanay and in Hollywood with Sennett; and the many women in his life (some of whom he treated horribly, and vice versa). Chaplin's politics were controversial, surfacing in open displays of communist

hyperbole interspersed with denials of any political interests whatever. As a filmmaker, he was a brilliant performer and director of actors, but ignorant in matters of photographic technique or other technical elements of production.

Chaplin definitely had a dark side. A chilling example is Robert Florey's anecdote about the fate of the family cat that scratched Chaplin's hand in *Monsieur Verdoux*. Lynn tells all, admirably avoiding rumor mongering, in this valuable contribution to Chaplin lore.

Selznick's Vision
by Alan David Vertrees
University of Texas Press,
242 pps., paperback $30

Yet another study of Selznick's *Gone With the Wind*? Yes, believe it or not, but *Selznick's Vision* is a good grab because it covers some unexplored territory. Art historian Vertrees' basic premise is to deconstruct Selznick's popular reputation as a meddling tyrant who drove everybody nuts, kept firing key personnel, and yet somehow wound up with a big hit on his hands.

Fortunately, this book isn't just another *auteur* paean. Production designer William Cameron Menzies receives almost as much coverage as Selznick, and is credited as the picture's other key architect. The focus upon this close collaboration as the foundation of *GWTW*'s structure is well thought-out, and it's refreshing to find an author who recognizes so clearly the value that artistic design has to cinema.

On the other hand, the film's cinematographers are barely mentioned, with no comment on their work other than that it adheres to Menzies' concepts and is, therefore, consistent. Actually, one could argue that the scenes photographed by Lee Garmes, ASC sport a considerably different look (in matters other than composition) from those shot by Ernest Haller, ASC, even though both collaborated with the same great Technicolor cinematographers — Ray Rennahan, ASC and Wilfred M. Kline, ASC. ■

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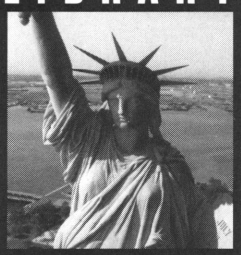

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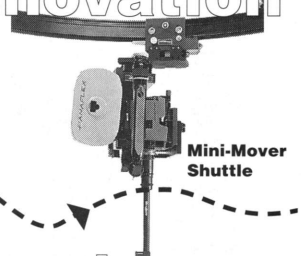

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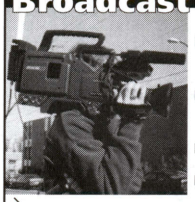

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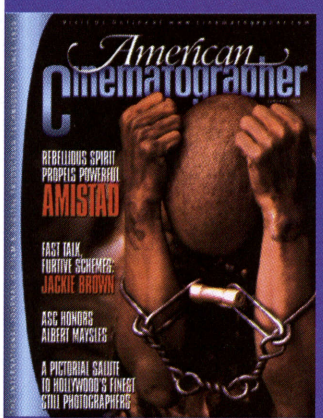

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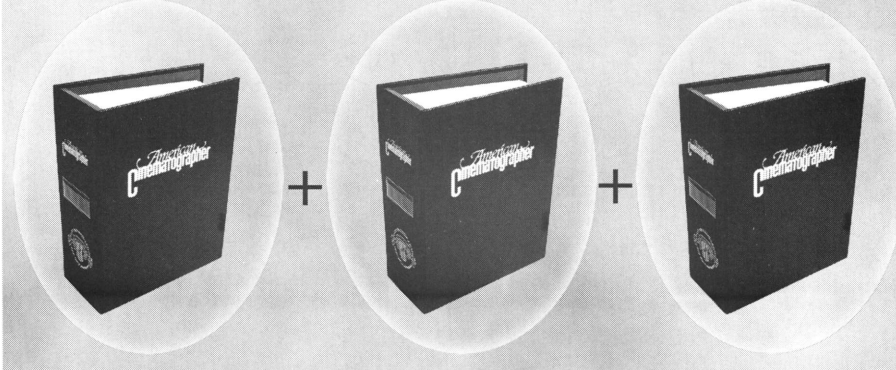

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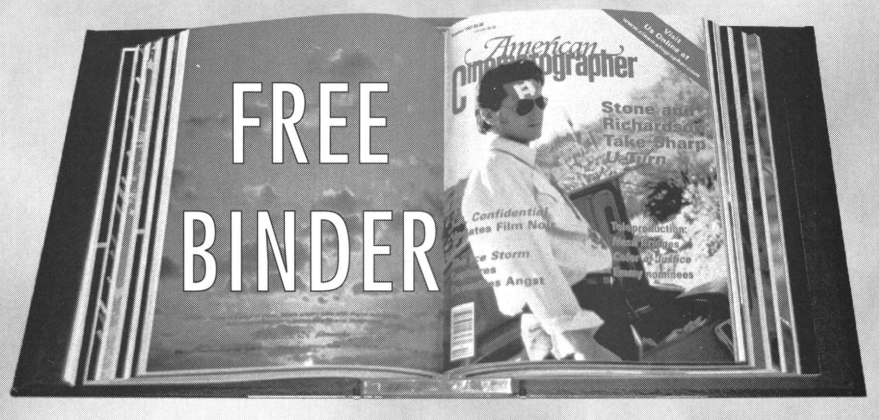

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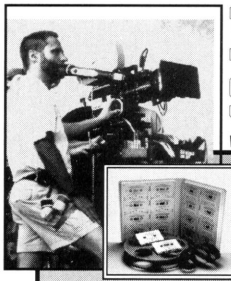

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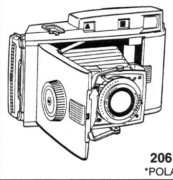
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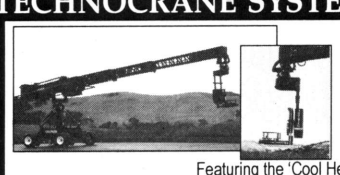
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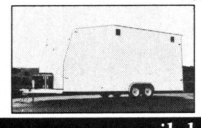
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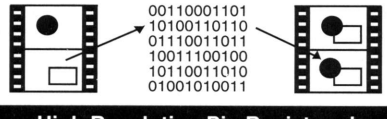
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From the Clubhouse

The ASC recently inducted the following associate members. **Joe Matza** is chairman and CEO of Las Palmas Productions, Inc., which owns and operates three digital imaging companies — Composite Image Systems, Electron Film Works, and Digital Cinema Systems. This California native began his career as a graduate student in Communication Arts at Loyola Marymount University. In 1972, Matza and three colleagues created the Magicam, which allowed complete freedom of camera movement during composite photography while simultaneously shooting live-action and a miniature set; the motion of the live-action camera was sensed, processed and then replicated in real time by a slave camera viewing the miniature. While employed at Paramount Pictures, Matza was a visual-effects director on several projects including Carl Sagan's *Cosmos,* which used the Magicam extensively.

In 1982, Matza and his associates formed Las Palmas Productions, which specialized in visual effects and pioneered the use of electronics for compositing images. They were also the first to incorporate pin-registered optical printer movements into the television film chain. These innovations became the basis for the first Electronic Optical Printer, which was used to create visual effects ranging from complex multi-level blue screens to simple digital dissolves.

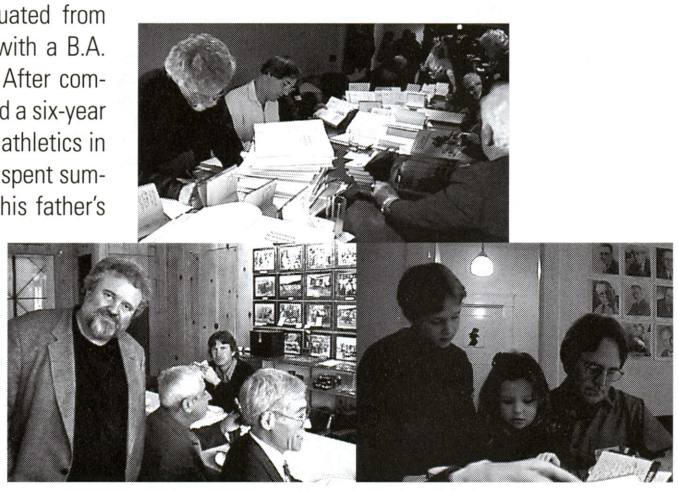
In 1984, Composite Image Systems was formed and quickly established itself as leader in visual effects. CIS has been responsible for many award-winning TV commercials and initiated the use of digital compositing for the recent slate of *Star Trek* television series. CIS was also one of the first companies to use digital technology for features, including such films as *Honey I Blew Up the Kids*, *Star Trek: Generations*, *Batman Forever*, *Waterworld*, *Dante's Peak*, *Contact*, *Titanic* and *Terminator 2 3-D*.

A native of Washington D.C., **D. Brian Spruill** has been employed by Eastman Kodak for some 25 years. He currently serves as the company's regional business general manager and vice-president of Professional Motion Imaging. In 1963, he graduated from Michigan State University with a B.A. in business administration. After completing his studies, Spruill did a six-year stint teaching and coaching athletics in Michigan and Maryland; he spent summers, however, working at his father's company — Byron Motion Picture Laboratory. His tenure at Kodak began in Oklahoma, where he functioned as a technical sales representative. During the late Seventies and Eighties, he worked at Kodak's corporate headquarters in Rochester, New York, in various management positions. In October 1985, Spruill moved to the Kodak Hollywood complex, initially as a district sales manager. During the early Nineties, he became chief operating officer and president of FPC, a Kodak company that provides a wide range of service for the film industry. During the past several years, he has headed the PMI business planning team.

ASC Opens House for Book Sale

A fierce storm overtook Southern California on December 6, 1997, but stalwart members of the American Society of Cinematographers and over 150 cinematography enthusiasts ignored the weather to attend the annual Book Bazaar held at the ASC Clubhouse in Hollywood.

Guests took advantage of the rare opportunity to meet Society members, and tight discussion groups filled the Clubhouse floor throughout the afternoon as visitors grilled their hosts. The ASC members fielded inquiries regarding specific lighting and camera setups from classic films, working relationships with directors, the cinematographer's role on the set, the influence of visual-effects technology on shooting, and how to prepare for working in the field.



Clockwise from top: Isidore Mankofsky, Russell Carpenter and James Liles add their signatures to various ASC publications; Roy H. Wagner sits with his son and daughter; Allen Daviau joins ASC fellows Don Burgess, Willy Kurant and Woody Omens for lunch.

The gathering also gave John A. Alonzo, ASC an opportunity to try out his new digital still camera, and three of his shots appear here.

Other ASC members in attendance (all of whom lent their signatures to books and posters) included then-president Owen Roizman, current president Woody Omens, vice president Steven Poster, Ron Vargas, George La Fountaine, George Koblasa, Russell Carpenter, Robert F. Lui, Michael Negrin, Kees Van Oostrum, Judy Irola, Willy Kurant, Allen Daviau, John C. Flynn, James F. Liles, Sandi Sissel, Don Burgess, Isidore Mankofsky, Michael Margulies, Paul Ryan, John Schwartzman, Roy H. Wagner and William Wages.

Limited numbers of signed books and posters are still available and can be obtained through the ASC. ■

WRAP SHOT

Duncan Renaldo, Harry Carey and Mutia Omoolu are seen at a disadvantage in a remote up-river village. Those white dots atop some of the poles are human skulls.

Extended location trips provide filmmakers with an attractive escape from the studio-bound routine. Often, however, such forays offer too many problems and discomforts to allow for much pleasure, and occasionally, they even become sheer hell for everyone involved. Take, for instance, M.G.M.'s wonderful *Trader Horn,* most of which was shot in Africa between March 1929 and December 1930. The film tells the supposedly true tale of a grizzled river trader and a friend who face many dangers from wild animals and hostile tribes during their quest for a mysterious "white goddess."

Principal location photography occurred in an area then comprising the Territory of Tanganyika, the Protectorate of Uganda, the Colony of Kenya, the Anglo-Egyptian Sudan, and the Belgian Congo. An on-screen statement by director W. S. Van Dyke II extols the "courageous and efficient services of the white hunters, Maj. W.V.D. Dickenson, A.S. Waller, Esq.; J.H. Barnes, Esq.; H.R. Stanton, Esq., who were chiefly responsible for the expedition's ability to traverse 14,000 miles of African veldt and jungle."

Problems included malaria contracted by Van Dyke and many of the crew, crocodiles which reportedly killed a bearer, a variety of tropical fevers, sunstroke, dysentery, tse tse flies, ants, an angry rhinoceros which reportedly killed another bearer and nearly got Van Dyke and Dickenson as well. A tense romantic rivalry ensued between Van Dyke and his favorite cinematographer, Clyde de Vinna, ASC, over the script clerk, Josephine Chippo. A liaison between romantic lead Duncan Renaldo and "goddess" Edwina Booth led to a divorce, a scandal and an alienation of affections suit. Upon returning stateside, Renaldo received a two-year prison term as an alleged illegal alien, but was later pardoned by President Roosevelt. Star Harry Carey angered M.G.M. chief Louis B. Mayer when he requested more money for the sound retakes at the studio, and found himself working for Mascot and Ajax for several years. Booth appeared with Carey in two serials, then went into seclusion for many years.

Carey and Renaldo eventually salvaged their careers. Van Dyke, despite occasional malaria attacks, pursued his notable directorial career into the 1940s. De Vinna — who had his reports from Africa serialized in *American Cinematographer* (see July 1929 and Jan. '30) — continued to enjoy a long and distinguished career as a top cinematographer. His numerous credits include *Ben Hur* (1926, with Karl Struss, ASC), *Bird of Paradise*, and *White Shadows in the South Seas* (with help from Robert Flaherty), which earned de Vinna an Academy Award for Best Cinematography in 1930.

— George E. Turner

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